JULY 1955

FIREMEN

SIXTIETH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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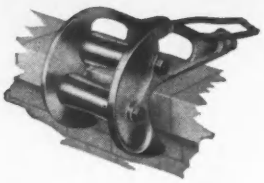

HOSE ROLLER

Constructed of Wooster-lite alloy with bronze bushing and cold rolled steel pins and rope hook. This roller weighs less than 10 lbs. It is 13" long and 8" wide and high. Most departments are now specifying this hose roller on all their pumper specifications as well as ladder trucks.

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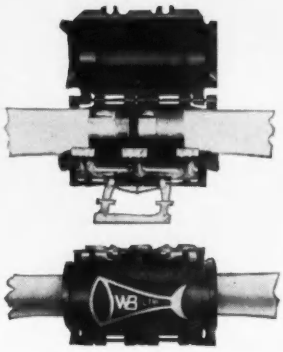

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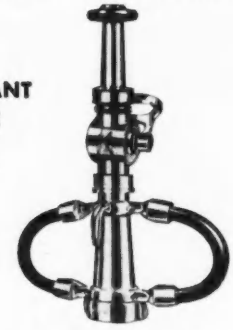

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Firemen

Volume 22 — Number 7

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Cover Picture

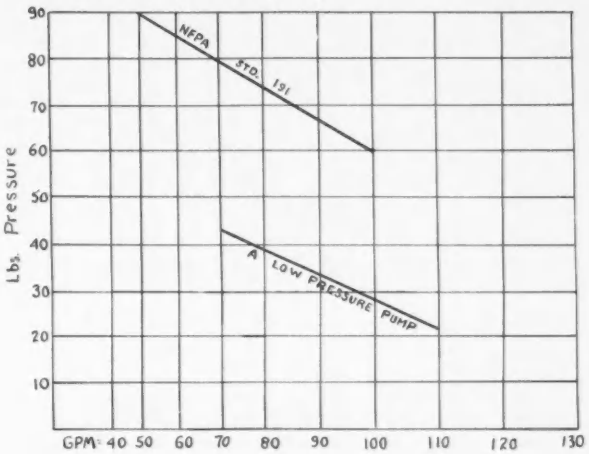
Two boys, aged 10 and 14, entered this Philadelphia, Pa., church on May 5 to loot and commit vandalism. All they managed to loot was 15 cents, but they also lighted papers and other combustibles near the spire, which was fully involved when fire fighters responded. Loss was estimated at $300,000. (*Philadelphia Evening Bulletin Photo.*)

Portable Pumps

This is a reminder that NFPA Standard No. 191, "Portable Fire Pumps," is designed to provide a reliable guide for the purchase of portable fire pumps capable of supplying fire department automobile pumpers with effective volumes of water, and also of supplying direct streams through 1½-in. hose with adequate volume and pressure. Such pumps should not be confused with forestry pumps which are designed to supply very small quantities of water at effective operating pressures.

There are, of course, many other types of portable pumps being manufactured for various categories of service, such as pumping out ditches or excavations, where pumps capable of relatively low pressure and volume are satisfactory. While such pumps do not provide adequate pressure for effective fire streams, especially where pressure losses in fire hose must be overcome, it is not uncommon to see low pressure pumps advertised as fire pumps.

The accompanying chart shows the pressure-volume requirement of pumps meeting NFPA Standard No. 191, and the pressure volume performance of a typical non-fire service portable pump.



One trick frequently used in an attempt to sell the low pressure pump as a fire pump is to run 50-foot lines of hose with very small nozzle tips, so that practically the entire pump pressure will be produced at the nozzle, giving the illusion of a satisfactory fire stream. The salesman neglects to call attention to the fact that if a standard nozzle tip were used to provide an adequate flow, and the line of hose were 300 or more feet long, the performance would be far from satisfactory. It may be noted that the NFPA standard calls for 50 gpm at 90 lbs. This means that the portable pump should be able to supply a ½-in. tip at 50 lbs. pressure through 400 ft. of 1½-in. hose, and it should be capable of taking suction at a lift of 10 feet. In other words, do not be impressed with a portable pump which cannot deliver satisfactory volumes of water through a standard fire hose layout.

Ladder Trucks

As has been pointed out previously, a ladder truck is the most costly piece of motor fire apparatus purchased by many fire departments. There are two basic types of ladder trucks recognized at the present time. One is the power operated, metal aerial ladder and the other is the combination pumper-ladder-truck, known as a "quad" because it carries pump, hose, water tank and long ladders.

Standard specifications for ladder trucks have been prepared by the NFPA-IAFC Committee on Fire Department Equipment and are published by both the National Fire Protection Association and the National Board of Fire Underwriters in Pamphlet No. 19.

In an effort to keep the specifications in line with the thinking of fire chiefs who are using ladder trucks, the NFPA Fire Service Department submitted a questionnaire to member fire chiefs having ladder trucks. The results of this questionnaire are included in a report beginning on page 12 of this issue. This report is also available in pamphlet form at 25 cents per copy.

Aerial view of Newark pier fire after wind shifted in direction, endangering fire fighters, apparatus and equipment. (*All photos by R. Swab, Newark, N. J.*)

Wind Shift Makes Pier Fire Tougher

From a report by Deputy Chief Frank J. Hilliard, Newark Fire Department.

ON APRIL 8, a fast-spreading, hot, smoky fire, fanned by a stiff, off-shore wind, roared along 200 feet of creosote-and-oil-soaked heavy timber pier in the Newark, New Jersey, waterfront area. involving several barges and threatening some large steamships nearby. Though the lives of several members of the Newark Fire Department were threatened on two occasions, no one was seriously hurt or injured.

This three-hour fire almost totally destroyed 100 feet of pier and damaged planking on an additional 100 feet. It is estimated that the damage to pier and barges will exceed $300,000. The pier is owned by the United States Navy and subletted to Lipsett Steel Products Corp. It is situated on the north side of the Port Newark Shipping Channel, is about 4,000 feet long, and has concrete fire stops every 100 feet. However, these stops do not, in all cases, come up to the underside of the planking. There are openings for an electric "third rail" to operate the cranes and there are pipe openings as well. Thus the fire stops do not provide the utmost in protection.

Beside this pier is a pump house which feeds a manifold of six 2½-in. outlets. These were used to capacity during the fire. There are also ample facilities along the entire length of this dock for engines to take draft.

The first alarm for the fire was sounded at 1:59 p.m. This was during "working hours" and there were many men around this area, yet no one knows exactly how the fire started. Two coal-fired, upright steam boilers on one of the barges might have initiated the blaze. Crew members of the steel steamship "Cambridge" tried to extinguish the flames for fifteen minutes before the first alarm was sounded, a fact uncovered by our Arson Squad in reading the "Cambridge" log.

Engine Company No. 32, headed by Captain Clinton L. Parmelee, sent the second alarm at 2:02 p.m. Just after this alarm, Deputy Chief Frank J. Hilliard and Battalion Chiefs Daniel Shanahan and Peter B. Kelly arrived on the scene and immediately ordered four heavy streams and several handlines to work on the main body of the fire. A few moments later Acting Chief Engineer John M. Ruscheck arrived and remained in charge throughout the fire.

As previously stated, the wind was from the shore in other words on our backs. Five minutes after the first hand line was stretched a heavy steel frame fell to the pier, coming directly between the two men operating the line, Captain Clinton L. Parmelee and Fireman Eugene Reilly of Engine 32. The boom knocked off Captain Parmelee's helmet and crushed it, then smashed through the 4-inch planking. Needless to say, this added a severe problem to our operations.

However, when heavy streams and mobile hand streams had been operating for about twenty-minutes, the fire cooled down noticeably and we believed it to be under control.

At this time the Deputy Chief lowered himself into one of the burning barges with the thought of getting two hand lines to work in this area, one to mop up fire on the barge, and the other to kill fire underneath the pier at the fire stop where flames were getting more stubborn every minute. While the men were waiting for these two lines to be brought on the barge, the wind very suddenly shifted and started blowing inland at 30 miles per hour. (This velocity was determined later from official Navy records.) The shift gave the fire new life, and before we could protect out positions, the flames carried up to and past our heavy streams and operating forces, with such speed and heat that we were forced to withdraw from fire fighting and give all of our efforts to salvaging hose wagons, pumpers, and thousands of feet of hose in the direct path of fire travel.

After our salvage efforts, and before we could reorganize and control the inland march of fire, it had covered 100 feet more of the pier, to say nothing of the

fact that it took one of our Ford hose wagons (complete loss), fifty-seven lengths of 2½-in. hose and small equipment.

The fire in this new section was quickly brought under control by the use of four cellar pipes, several hand lines, and streams from one of our fire boats, which directed its attack on the pier substructure. It was later discovered that only the planking in this 100-ft. section was damaged.

During the change in wind and fire travel, the Deputy and a fireman were cut off and trapped on the barge, which, incidentally, was burning more vigorously. One of Newark's fire boats operating nearby was summoned and promptly pulled to the barge and removed the fireman and Chief undoubtedly saving their lives.

It was learned later that the first section of the pier was involved above and below the planking. As there is a great deal of marine traffic in this inlet, a lot of oil and grease floats on the water in this channel, and is deposited on the wooden substructure of the pier, with the rising and falling of tides. This explains in part the amazing speed of fire spread.

After the wind shift occurred, we sent third and fourth alarms at 2:32 P.M. and dispatched a request for a fire boat from New York City. At this time we also called Newark's remaining fire boat. Before either of these responded, three small Coast Guard fire boats arrived and started working on the barges and substructure of pier. They towed one barge, which by now (3:20 P.M.) was almost a total loss, out into the flats of Newark Bay and let it sink there. Immediately after the arrival of the Coast Guard units, two tugboats pulled in and crew members started operating 1½-in. lines on the surface of the pier. When the New York fire boat "Hewitt" arrived, the fire was under control and the service of this boat was not needed.

An overhauling detail of eight men from our fire department was kept on the scene till mid-afternoon of the next day, at which time all operational activities ceased. Of course, our Arson Squad investigation was carried on for seven or eight more days until, in our opinion, every source of information or factual data had been thoroughly explored.

First attack on this fire appeared to be successful until the wind changed to this direction, causing fire to spread rapidly past fire fighters' positions, ruining 57 lengths of 2½-in. hose and totally destroying one of Newark's hose wagons.

Here's a line-up of the apparatus and equipment that was called or used: 13 pumping engines, 1,000 gpm capacity; 4 combination hose wagons; 4 hook & ladder companies; 2 Newark fire boats; 2 salvage wagons; 1 rescue squad; 1 Acting Chief Engineer (car); 1 Deputy Chief (car); 2 Battalion Chiefs (car); 1 repair shop crew; 3 Coast Guard fire boats; 2 tug boats; 1 New York fire boat; 1 Newark Police Emergency Squad; 1 ambulance of the Bell & Siren Club; 1 Public Service crew; and a crew from the Water Department.

We also used 293 lengths of 2½-in. hose in 30 lines; 29 lengths of 1½-in. hose in 10 lines; and ran up an operating total of 84 engine-hours for the apparatus.

Our department, headed by Chief Engineer Harry J. Sommers, was commended for its work on this fire by Rear Admiral R. T. Cowdrey, U. S. Navy, Commander of the New York Naval Shipyard, who wrote to Newark's Mayor Leo P. Carlin, "expressing deep appreciation and high regard for the worthy performance and cooperation on the part of the Newark Fire Department."

***(Left)* Fire after control was established. Note fallen steel boom in upper center of pier. This crashed between two fire fighters who were manning one 1½-in. line. Large tower straddling pier was also threatened as shown in picture at upper right.**

Manual of Firemanship

THE Home Office of Britain's national fire service publishes a 7-volume "Manual of Firemanship," designed to supply a comprehensive textbook for firemen of all ranks. Part V of this manual is a volume on "Communications," issued for the first time. The 96-page, 5⅜ x 8¼-in. book, gives thorough descriptions of Britain's fire alarm service, watch rooms and control rooms, "call out installations," (a term denoting the combinations of circuits and systems which summon firemen for emergency calls) and wireless, (or the use of radio), in the fire service.

The book is published by Her Majesty's Stationery Office in London and may be obtained by writing to Home Office, Fire Service Department, Hoseferry House, Dean Ryle St., London, S. W. 1, England. Price is 4 shillings (72c) per copy.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Using the Nozzle Tip as a Water Meter

AS HAS been pointed out previously in FIREMEN and in the NFPA Manual "Operating Fire Department Pumpers," a nozzle tip, or orifice, is in effect a water flow meter. Some knowledge of flows from nozzle tips at various pressures will give us certain information that will be valuable on the fire ground.

One fact of interest is that the square root of any nozzle pressure, multiplied by one-tenth of the flow at 100 lbs., gives the discharge at any nozzle pressure. For example, here are the square roots of some nozzle pressures:

NP	SQ. RT.
36	6
49	7
64	8
81	9
100	10
121	11
144	12

Let's take a 1-inch nozzle tip and see how this "rule-of-thumb" works. We have a useful formula GPM = $29.8\ d^2\sqrt{NP}$. Thus, as the diameter of a 1-inch nozzle squared is 1, we find that at 100 lbs., we have 29.8 x 10 (the square root of 100), or 298 gpm. What will be the flow of a 1-inch nozzle at 49 lbs.? The square root of 49 is 7. Thus 29.8 x 7 gives us 209.6 or 210 gallons. Incidentally, this is approximately 70 percent of the flow at 100 lbs. We observe that each time the change in NP is equal to a change in square root of one digit above or below 10, we add or subtract 1/10th in volume as compared with the flow at 100 lbs. At 64 lbs. NP (8 x 8) we have approximately 8/10ths or 4/5ths of the flow at 100 lbs., or 240 gallons with a 1-inch tip.

We can show the flows in round numbers (disregarding exact nozzle coefficients) as follows:

NP	SQ. RT.	GPM	Percent of the Flow at 100 lbs.
100	10	300	100%
81	9	270	90%
64	8	240	80%
56	7.5	225	75%
49	7	210	70%
36	6	180	60%
25	5	150	50%

From the above it also may be noted that 25 percent of 100 lbs. nozzle pressure gives 50 percent of the flow because the square root of 25 is half the square root of 100. We observe the rule that to double the volume from a given nozzle, the square root of nozzle pressure must be doubled.

Suppose that we have 36 lbs. nozzle pressure and wish to double the volume with that nozzle. The square root of 36 is 6. Twice 6 equals 12, so 12 x 12 or 144 lbs. nozzle pressure will give us twice the volume as produced with 36 lbs. NP. If we wished to increase the volume 50 percent, we would increase the square root of nozzle pressure by half. Thus the $\sqrt{36}$ equals 6, and 50 percent of 6 is 3. Adding 6 and 3 gives 9, and 9 x 9 equals 81 lbs. which gives us 50 percent more water from a given nozzle than does 36 lbs. pressure.

These facts apply to any nozzle tips and pressures within ordinary operating range. If a nozzle is discharging 150 gpm at 25 lbs. (square root 5) and we wish 225 gpm, we increase pressure so that the square root of nozzle pressure equals 7.5 and get the desired flow at 56 lbs.

With other sizes of nozzle tips, the gpm at 100 lbs. can be determined by multiplying 298 (gallons per minute with 1-inch tip at 100 lbs.) by the square of the nozzle diameter. For example, for a 7/8-inch tip we square the diameter (.8750 x .8750 = .7656). Thus .7656 x 298 = 228 gpm flow with a 7/8-inch tip at 100 lbs. For round numbers in the field we can use 300 gpm for the 1-inch tip instead of 298 gpm.

Other flows with a 7/8-inch tip are shown in the next column.

Flows from 7/8-in. tip

NP	SQ. RT.	GPM	Percent of the Flow at 100 lbs.
36	6	137	60
49	7	159	70
64	8	183	80
81	9	205	90
100	10	228	100
121	11	251	110
144	12	274	120

FOR tips larger than 1-inch the process is the same. With a 1 1/8-inch tip the diameter is squared (1.125 x 1.125) to 1.2656. The 1.2656 x 298 gives 377 gpm at 100 lbs. Thus other flows with a 1 1/8-inch tip are determined by multiplying 37.7 (one-tenth of gpm at 100 lbs.) by square root of NP as follows:

Flows from 1 1/8-in. tip

NP	SQ. RT.	GPM	Percent of the Flow at 100 lbs.
36	6	226	60
49	7	264	70
64	8	302	80
81	9	340	90
100	10	377	100
121	11	415	110
144	12	452	120

Flows at 100 lbs. with various sizes of tips are shown below:

Tip	GPM at 100 lbs.	Tip	GPM at 100 lbs.
1/4	18.7	13/16	417
3/8	42.0	1 1/4	461
1/2	74.6	"350"*	496
5/8	116.	15/16	514
3/4	168	1 3/8	560
7/8	228	1 1/2	667
"175"*	248	1 5/8	783
15/16	262	1 3/4	909
1	298	2	1189
"250"*	354	2 1/4	1482
1 1/8	377		

*Tips flow rated at 50 lbs.

If all tips were marked or stamped with their flow at 100 lbs. it would be easy to estimate the flows at other pressures. For example 49 lbs. NP would be 70 percent of the flow and 81 lbs. NP would give 90 percent flow. Flows from fog nozzles can be estimated similarly if the gpm of the desired setting at 100 lbs. is known.

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write to

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Comparing Achievements of

Fog and Solid Streams on Large Fires

MANY fire departments now are familiar with the advantages of small capacity fog streams, but fewer communities have had extensive experience with "master" fog streams. The Memphis, Tennessee, Fire Department, headed by Chief John C. Klinck, is an exception since its members have used these master fog streams on a number of occasions. Chief Klinck has been pleased with the results obtained with large capacity fog nozzles employed by his department. Upon request by the editors of FIREMEN, Chief C. L. Scott, Drillmaster of the Memphis Fire Department, describes these typical fires that serve to compare the advantages of fog *vs.* solid stream attack. He states, "While it is difficult to make exact comparisons, it may be noted that solid stream attack on large fires required many more hours of work than were required with fog nozzle operations before control and extinguishment were effected."

Typical Large Fire Fought with Solid Streams

On March 5, 1930, a fire destroyed the Haverty Furniture Company in Memphis, with a loss of $220,000. Three alarms were turned in and the fire was fought for 16 hours. A total of 22 lines was used on the fire.

On September 25, 1938, a three-alarm fire destroyed seven dry kilns containing 100,000 board feet of lumber at the Memphis Hardwood Flooring Company. This fire took nine hours to control and 18 hours to extinguish.

The Nickey Brothers Lumber Company fire, on June 8, 1940, required a four alarm assignment of 15 pumpers, two trucks and a deck wagon, as well as most of the off-duty shift. The fire took almost 24 hours to control and smouldered for several days.

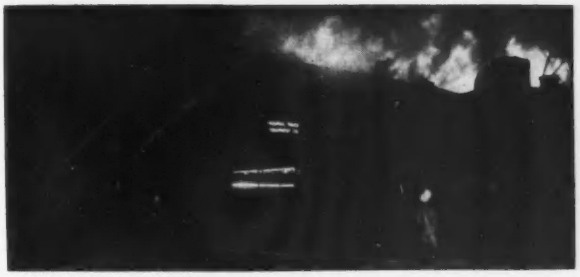
On March 6, 1947, a four alarm fire destroyed a 4-story brick, wood joisted building at Main and Union, housing the Walgreen Drug Company. Sixteen pumpers, 3 trucks, a deck wagon and water tower were used at the fire, which took 15 hours to extinguish.

Compare the above fires with some of the more recent multiple alarm fires we have had.

Typical Large Fires Fought with Master Fog Streams

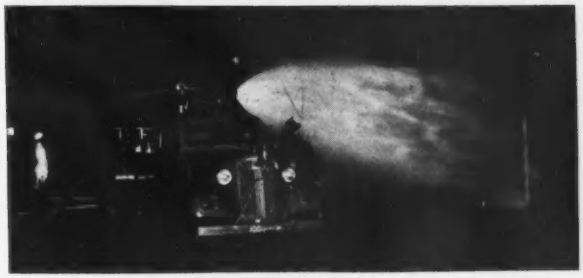
The first time a heavy fog stream was used in Memphis was at the Fruehauf-Carter Trailer Company, on October 19, 1951. The building was a one- and two-story brick and corrugated iron on steel frame structure, about 300 feet long and 70 to 80 feet wide. Despite a delayed alarm of about 17 minutes, five engines, two trucks and the deck wagon, used only eleven 2½-in. lines to control the fire, and completed extinguishment in two hours and five minutes. During this fire the deck wagon, equipped with a JN-200 nozzle, was driven into the building and the fog stream opened up. In a matter of a few minutes, the fire was brought under complete control and the remaining time spent in overhauling.

(*Continued on page 22*)



Typical use of large calibre fog streams by the Memphis Fire Department is shown in these photos, taken during a 3-alarm fire in a tire retread plant in October, 1951. (See FIREMEN for January, 1952.) When fire fighters responded to a delayed alarm at 2:30 a.m., flames had heavily involved this block-long structure and threatened exposures. As second alarm companies arrived, large fog gun on salvage truck begins to cover flames shown sweeping the roof. Within 15 minutes this part of the fire was blacked out.

As third alarm companies get into service a stream from a water tower supplements the large fog gun fed by three lines.



Later during the fire the fog gun was used to control flare-up of flammable liquids, including rubber cement.

Two fog guns giving mobile support to engine company crews advancing for mop-up.

A Survey of Fire Department Ladder Trucks

Conducted for the NFPA-IAFC Committee on Fire Department Equipment by the NFPA Fire Services Department.

AT THE January meeting of the NFPA-IAFC Committee on Fire Department Equipment a suggestion was presented by the Engineering Advisory Committee of the Fire Apparatus Manufacturers Association to the effect that consideration be given to changing the recommended standard ladder complement for ladder trucks included in Standard No. 19 — Specifications for Motor Fire Apparatus. After discussion the secretary of the committee was instructed to conduct a survey regarding fire department ladder trucks by writing to the chiefs of member fire departments known to have such trucks in service. Accordingly a questionnaire was prepared for mailing to 345 fire chiefs. The questionnaire included the following ten items:

Fire Department, City..... State.....

1. No. Aerial Ladders in Service: Tractor-drawn...Service Type....
2. No. Pumper-Ladder (Quad) Combinations in Service.....
3. Your Standard List of Ground Ladders — No. — Length — Type† (If department has no standard list give your latest selection)
   Your Recommended List of Ground Ladders — No. — Length — Type†
4. How was your latest ladder complement selected?
   Suggestion by manufacturer
   Inherited
   Study of ladders raised
   If latter, please give date and findings of study.
   †Type: Extension with poles, Extension without poles, straight wall, roof, etc.
5. Does your department prefer 45 ft. or 50 ft. pole ladders?.....
6. Suggested Nesting for Ladders: (give your preference):
7. Does your latest ladder truck have metal or wooden ground ladders?
8. Do you favor ladders on the sides of ladder trucks for ready access for rescue?
9. How many total feet of ground ladder do you recommend for tractor-drawn aerials.....for service aerials.....?
10. Do you favor 65 ft. aerials for municipal service or do you feel that the minimum standard aerial should be 75 ft.?

By April 1st some 150 replies had been received from fire chiefs who demonstrated their intense interest in this subject by not only filling in the detailed questionnaire but including generous and helpful comments and suggestions which have been digested as part of this report.

For the purpose of study the replies have been grouped in accordance with the number of ladder trucks reported by the various individual chiefs, regardless of the size of the community. This does not necessarily mean that the report indicates the exact number of ladder trucks in the department, because in a few cases the chief obviously did not bother to report on old service ladder trucks or trucks in reserve, although a vast majority of the reports are quite complete. There are several reasons for the grouping of the data by number of ladder trucks rather than the size of the city. First, the number of ladder trucks is some indication of the amount of ladder work done by the department. For example, a number of the newer cities in the western states have a relatively lower building height in residential areas than in some of the old cities of the east and midwest which have congested residential areas which require heavy ladder service. Many of the older cities have a ratio of better than one ladder company for each two engine companies, while relatively a smaller number of ladder trucks is required in some communities. Secondly, fire departments having a single ladder truck or only two or three ladder trucks have a problem in selection of ladder complement and equipment that is different from a department having a large number of trucks available.

The purpose of this survey is to reflect the experience and opinions of fire chiefs using aerial ladders and the purpose of the NFPA in publishing this information is to make this experience available to the members of the fire service interested in the subject of ladder trucks.

Table 1-2 (below) tabulates the answers to items 1 and 2 in the questionnaire relative to the number and types of ladder trucks in service. It is interesting to note that over 82% of the departments having one aerial truck are using the service-type of aerial rather than the tractor-drawn type. The percentage of tractor-drawn aerials increases substantially for departments having more than one ladder truck, and almost 70% of the ladder trucks in departments having eight or more aerials are of the tractor-drawn type. Several of the chiefs gave some interesting comments regarding the reason for the selection of the particular type of

TABLE 1-2. NUMBER AND TYPES OF LADDER TRUCKS REPORTED

	Departments Reporting	Tractor Aerials		Service Aerials		Quads or Quints		Service Ladders		Total Ladder Trucks	
	No.	No.	%	No.	%	No.	%	No.	%	No.	%
Depts. reporting 1 truck	34	5	14.7	28	82.3	1	3.0	0	0	34	100.0
" " 2 trucks	42	24	28.6	42	50.0	14	16.6	4	4.8	84	100.0
" " 3 trucks	28	37	44.0	31	36.9	13	15.5	3	3.6	84	100.0
" " 4-7 trucks	22	33	30.0	43	39.1	28	25.4	6	5.5	110	100.0
" " 8 or more trucks	24	190	69.4	86	26.9	16	5.0	28	8.7	320	100.0
Total	150	289	45.6	250	39.5	72	11.4	41	6.5	632	100.0

truck. Where streets are very narrow and congested the tractor type seems to be preferred because with the rear tiller wheel it can be maneuvered into tight spaces and the truck can be jacknifed for greater stability when the ladder pipe is to be used. Also, the carrying capacity of the tractor type aerial is greater and permits a larger complement of ladders and tools to be provided. The cities with four to seven ladder trucks showed a relatively smaller percentage of tractor-drawn aerials, presumably because in outlying residential districts the ladder service is provided by small service aerials or "quad" trucks. In the large cities it is quite common to provide standard heavy duty aerials which can be used as required in any part of the community.

QUESTION No. 3 was in two parts. It asked for the standard list of ground ladders of the individual fire department, including the type of ladder whether extension with poles, extension without poles, straight wall, roof, etc. It also asked for a recommended list of ground ladders in the event the chief wished to suggest some changes in his present ladder complement based upon his local fire experience. The standard ladder lists reported by the chiefs were carefully tabulated to show the exact type and length of ladders being used at present in the various departments. This data is presented in Tables 3A, 3B, and 3C.

TABLE 3A. AVERAGE LADDER COMPLEMENT REPORTED BY CHIEFS

Departments Having:	No. Depts.	No. Trucks	Average No. Lads.	Average Feet Ground Ladders
1 Truck	34	34	8.5	210
2 Trucks	42	84	9.5	226
3 Trucks	28	84	10.3	249
4-7 Trucks	22	110	9.9	239
8 or more Trucks	24	320	11.3	271
Total	150	632	9.6	239

Table 3A shows the average number of feet of ladders carried by ladder trucks, and the average number of ladders per truck. It is interesting to note that both the average number of ladders and the average footage of truck increases as the number of trucks in the department increases. The exception to this is the

TABLE 3B. LENGTH AND TYPE OF LADDERS IN REPORTED COMPLEMENTS

Type of Ladders	No. Trucks	Length of Ladders in Feet																							
		60	55	52	50	45	40	38	35	32	30	28	26	25	24	22	21	20	18	16	15	14	12	10	Total
Extension	1		1		23	8	4		42		2	1		2	2			1	1	14		5			106
	2		2		20	18	11		53		5	3		1	1			1		9	1	4	5	2	136
	3		3		18	8	4		41	1	5	1		2	4			2	1	4		6	3	1	104
	4-7	1		1	20	7	3		32		5	3	2	2	2			2	2	6		4	3		95
	over 8		3		13	9	1	2	36		2	5	1	6	4			3		3		13	4	2	107
	Total	1	9	1	94	50	23	2	204	1	19	13	3	13	13			9	4	36	1	32	15	5	548
Wall	1										2	21	1	13	24	2	2	15	1	11		2	2		96
	2										4	23	2	24	11	4	24	3	9		2				106
	3									5	2	15	3	9	13	1		23	5	14			2		92
	4-7									3	1	11		15	10			19		8				3	70
	over 8									1	1	12		13	11	3		15	5	7			1	2	71
	Total									9	10	82	6	74	69	10	26	75	20	40	2	2	5	5	435
Roof	1											1		1	1	1		12	3	25		11	12		67
	2											2		6	1	1		22	6	36	2	19	18	1	114
	3											1		1	2	1		6	2	23		11	13	1	61
	4-7													1		1		7	10	21		19	7		66
	over 8													1		1		11	6	19		13	12		63
	Total											4		10	4	5		58	27	24	2	73	62	2	371
Folding	1																						3	12	15
Attic	2																						7	12	19
Scuttle	3																					2	1	16	19
	4-7																						2	8	10
	Over 8																			1		2	3	5	11
	Total																			1		4	16	53	74
Pompier	1																					2			2
	2																			3		2	1		6
	3																			2		2	1		5
	4-7																					8	2		10
	Over 8																			2		5	4	1	12
	Total																			7		19	8	1	35
Grand Total		1	9	1	94	50	23	2	204	10	29	99	9	97	86	15	26	142	51	208	5	130	106	66	1463

TABLE 3C. NO. PAIRS OF LADDERS OF VARIOUS LENGTHS CARRIED IN COMPLEMENTS REPORTED IN TABLE 3B

	Length of Ladders in Feet																			
Depts. Reporting	55	50	45	40	38	35	32	30	28	26	25	24	22	21	20	18	16	14	12	10
1 Truck						12			1		4	5		1	5		14	4	2	
2 Trucks		1		1		15			2		5	1			7		7	2		
3 Trucks	1		1			12		2		1	2	4			7		8			2
4-7 Trucks						10			2	1	2	2			5	2	4	8	1	
8 or More Trucks		1			1	10			4		5	4	1		4	1	4	6	3	
Total Pairs of Ladders	1	2	1	1	1	59	0	2	9	2	18	16	1	1	28	3	37	20	6	2
No. Tripled Ladders							1				1				1					

group of cities reporting four to seven ladder trucks which as previously observed had a higher proportion of the smaller service aerials and quads (pumper-ladder trucks) which are limited as to the ladders they can carry. It is also interesting as shown later in this report that the vast majority of chiefs in their recommended list indicated that they would carry even more ladders on trucks purchased in the future.

TABLE 3B (previous page) indicates the number of ladders at present carried in the standard ladder complements of the various departments. In using this table, it must be appreciated that not all of the trucks in a given department may meet the present standard because some of the trucks were purchased before the present local ladder complement was selected. The figures, therefore, show the totals for one standard complement from each department reporting so that, for example, where there are three ladder trucks the figures would be multiplied approximately by three to get the actual number of ladders of a given size.

Another important fact brought out in the tabulation of the list of ground ladders was the large number of ladders that are carried in pairs on the various ladder trucks. Table 3C shows the number of ladders carried in pairs in the various standard ladder complements. It will be noted that the 35 ft. extension is carried in pairs in 59 out of the 204 such extensions in the standard complements reported, and in addition one department has four such ladders in its standard complement, so that there were 82 standard complements with only one 35 ft. extension. However, quite a few chiefs indicated in their recommended ladder list that they would want two 35 ft. extensions with new ladder trucks. Also, very popular as paired ladders were the 25 ft., 24 ft., 20 ft., 16 ft., and 14 ft. ladders. This tabulation does not include as paired ladders, complements having short straight wall and a short extension of the same length. It is also extremely interesting to note that frequently where a 55 ft. extension was carried it was paired with a 45 ft. extension to provide two long pole ladders.

TABLE 4 shows how the various present ladder complements were selected. Quite a number of the replies indicated a combination of methods were employed in making the selection. The smaller communities having one or two trucks depended to a large extent upon the recommendations of the manufacturers. The larger cities, which in general reported that definite studies had been made of ladder requirements by the local department, frequently included surveys of the records and suggestions of the local ladder company officers. The column reporting the number of ladder complements inherited indicates the trucks were purchased before the present chief was appointed. The comments, in general, indicated that while there was reasonable satisfaction with the present ladder complements that changes would be made in future purchases. While not called for in the questionnaire, quite a number of chiefs reported that they were in general following NFPA-IAFC-NBFU Standard No. 19, which they found to be very helpful and satisfactory, and several reported that they had help from engineers of the insurance rating organizations having jurisdiction.

TABLE NO. 4. HOW LOCAL LADDER COMPLEMENTS WERE SELECTED*

Cities With	Mfgrs. Recommen.	Inherited	Local Study and Experience
1 Ladder Truck	12	11	10
2 Ladder Trucks	16	13	17
3 " "	5	9	15
4-7 " "	3	8	11
8 or more "	6	5	17
TOTAL	42	36	70

*Some depts. reported a combination of these.

THE questionnaire inquired, "Does your department prefer a 45 ft. or 50 ft. pole ladder?" There has been considerable interest in this subject due to the fact that these long ladders require the greatest teamwork and manpower and are necessary for locations which cannot be reached by the mechanical aerial

TABLE NO. 5. LONGEST MANUAL EXTENSION LADDERS PREFERRED

	35 ft.		40 ft.		45 ft.		50 ft.		55 ft.		60 ft.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Depts. with 1 Ladder Truck					9	30.3	24	69.7				
" " 2 " Trucks					15	37.5	24	60.0	1	2.5		
" " 3 " "					9	34.5	15	57.8	2	7.7		
" " 4-7 "			1	4.5	4	18.2	16	72.8	0		1	4.5
" " 8 or more "	1	4.1			7	29.2	12	50.0	4	16.7		
Total	1	0.8	1	0.8	44	30.2	91	62.6	7*	4.8	1*	0.8

*Longer ladder frequently paired with another extension 10 ft. shorter.

ladders. The 50 ft. ladder was preferred to the 45 ft. ladder approximately two to one. In cities having eight or more trucks there were four departments reporting that a 55 ft. extension is necessary because of tall building locations which cannot be reached with aerial ladders. There were several departments that reported that a 35 ft. or 40 ft. extension was the longest manually raised ladder required in their city. For example, the chief of one large city reported that after a careful study by ladder company officers, it was decided that two 35 ft. extensions would be the longest manual ladders required and except for these extensions, straight wall and roof ladders would be used because such ladders were considered quicker and safer than the extension type. A very high percentage of the departments having four or more ladder trucks appear to favor the 50 ft. ladders.

THE Fire Apparatus Manufacturers Association has reported difficulty in nesting two 35 ft. ladders on the smaller service aerials, and accordingly the questionnaire asked for a suggested ladder nesting under item No. 6 of the questionnaire. The chiefs showed great ingenuity in providing suggested arrangements for nesting ladders on double bank aerial trucks. As each report gives an individual suggestion, it is impossible to tabulate these other than as included in the comments of the chiefs reproduced with this study. The data clearly indicated that the individual chief had little difficulty in suggesting just how the ladders they recommended might be carried for maximum convenience.

THE chiefs were asked whether their latest ladder truck has wood or metal ground ladders. As shown in Table No. 7, approximately two out of three reported that wood ladders were used, although some indicated that plans were being made to obtain metal ladders because of their lightness and convenience. Six departments reported that they used both wood and metal ladders, in general employing metal construction for the longer ladders. It should be remembered that quite a few of the ladder trucks reported on were already in service before the use of metal ladders became general, so that it would appear that the actual preference at present is approaching a 50-50 ratio. Several chiefs indicated that it was possible to employ more long extension ladders with available manpower where metal ladders are used.

TABLE No. 7. CONSTRUCTION OF GROUND LADDERS ON LATEST TRUCK

Cities with	Wood	Metal	Both Types
1 Ladder Truck	24	10	1
2 " Trucks	27	11	4
3 " "	15	13	
4-7 " "	11	11	
8 or more "	15	6	1
Total	92	51	6

TABLE No. 8. DOES THE DEPT. LIKE SIDE LADDERS?

Cities with:	Yes	No
1 Ladder Truck	10	22
2 Ladder Trucks	13	25
3 " "	10	16
4-7 " "	9	12
8 or more "	9	13
Total	51	88

SOME 63% of the chiefs reporting indicated that they do not prefer ladders on the sides of their trucks, although quite a number of these stated that they would provide short ladders including baby extensions, pompiers, etc. on the sides of the trucks. It is interesting to note that the percentage using side ladders increased in the larger departments where considerably greater ladder complements are provided and where rescue work with ladders is more common. Some of the chiefs using side ladders preferred pairs of extension ladders and others preferred straight wall ladders. No attempt was made to determine whether the side ladders were employed with greater frequency on tractor-type aerials. Objections against side ladders included reduction in equipment space and danger to firemen riding on the sides of the apparatus where no crew compartment is provided for the men.

Chiefs were asked to recommend total footage of ground ladders for both tractor drawn and service aerials. Their advice is given in Table No. 9. In general the chiefs were careful only to make recommendations relative to the type of truck they employed in their own department or with which they were familiar. It is quite interesting to note that the recommendations very largely suggested more ladders per truck and a considerably greater total of footage of ladders per truck. The recommendations for tractor aerials suggested considerably higher ladder complements than that for service aerials recognizing the fact that such trucks can readily carry considerably more equipment and ladders. In fact, several chiefs suggested that it would be well to develop different standard complements for tractor aerials as compared with service aerials and quads. It may also be noted that the recommendations called for considerably greater ladder complement than that recommended in NFPA-

TABLE No. 9. TOTAL LADDER FOOTAGE RECOMMENDED BY CHIEFS

	FOR TRACTOR AERIALS					FOR SERVICE AERIALS				
	No. Depts.	Max. Ft.	Min. Ft.	Av. Ft.	Med. Ft.	No. Depts.	Max. Ft.	Min. Ft.	Av. Ft.	Med. Ft.
1 Truck	13	275	204	231	227	28	265	200	213	204
2 Trucks	22	384	196	244	228	34	296	166	221	213
3 Trucks	19	350	192	247	224	24	350	192	239	232
4-7 Trucks	17	350	148	255	235	19	310	121	229	211
8 or More Trucks . .	22	436	194	279	256	19	374	194	257	235
Total.	93	436	192	250	228	124	374	166	229	213

IAFC-NBFU Standard No. 19 which calls for 8 ladders totalling 219 feet and including a 50 ft. and two 35 ft. extensions. For convenience in studying the recommendations regarding ladder footage, we show the maximum and minimum ladder complement recommended in each classification of departments. We show the average footage of ladders recommended and the median footage recommended. The reason for showing the latter figure was that in some cases chiefs suggested very high ladder complements which would make the average slightly higher than the opinion expressed by the majority. It should also be noted that the chiefs recommended considerably greater complements of ground ladders than called for by their own present standards.

THERE has been considerable interest recently as to the recommended minimum size for aerial ladder trucks. Before the present service aerials were developed, the 75 ft. wooden aerial was the generally accepted minimum for municipal service. Then the 65 ft. service aerial was introduced to take place of the old service ladder truck which had no mechanical ladder. Quite a number of fire departments have been faced with the problem of what size aerials to purchase and so the questionnaire asked the chiefs whether they favored a 65 ft. aerial for municipal or whether a minimum of 75 ft. might be desirable. Nearly 85% of the chiefs wanted an aerial longer than 65 ft. It is interesting to note that the departments having only one aerial felt the handicap of the shorter ladder the most. The chiefs gave a great many reasons why in general they did not favor the 65 ft. ladder. They pointed that the cost differential was very slight, and that the same truck could just as well carry a longer ladder. Although not asked, quite a number of chiefs reported that they were making an 85 ft. and even a 100 ft. ladder their own minimum size and a number reported that while they had inherited quite a few 65 ft. aerials these were not satisfactory and would be replaced with longer ladders in the future. One department reported considering the replacement of the 65 ft. aerials and putting 85 ft. ladders on the existing chassis. Most of the chiefs who favored 65 ft. ladders stated that such ladders were satisfactory in residential districts and that they had longer ladders in the high value districts. There also appeared to be some opinion that smaller aerials would be satisfactory in small communities of low building heights which might not be able to afford the larger aerial ladders. Quite a number of chiefs pointed out where aerials were used for ladder pipe service, the additional length of ladder was an important consideration.

TABLE NO. 10. MINIMUM SIZE AERIAL RECOMMENDED BY CHIEFS

	65 ft.		75 ft.		85 ft.		100 ft.		Total	
Depts. with:	No.	%	No.	%	No.	%	No.	%	No.	%
1 Lad. Truck	2	5.8	30	88.4	2	5.8	0	0	34	100.0
2 Lad. Trucks	4	10.4	32	84.3	2	5.3	0	0	38	100.0
3 " "	6	21.4	20	71.5	2	7.1	0	0	28	100.0
4-7 " "	4	19.0	15	71.5	1	4.75	1	4.75	21	100.0
8 or more	6	27.3	5	22.7	7	31.8	4	18.2	22	100.0
Total	22	15.4	102	71.3	14	9.8	5	3.5	143	100.0

DIGEST OF COMMENTS BY CHIEFS REPORTING ON ONE LADDER TRUCK

Chief Paul Neumann, Appleton, Wis., would add 28 ft. and 24 ft. wall ladders which are missing from his present complement.

Chief Mike Mohl, Bellingham, Wash., reports that 35 ft. extension is adequate for 90% of the residential fires. His next truck will have two such ladders.

Chief J. P. Newark, Grand Forks, N. D., suggests that a 50 ft. aluminum ladder is as easy to handle as a 35 ft. wooden ladder. He would replace the 35 ft. extension with a 40 ft. extension. He recommends the 14 ft. combination step and extension ladder.

Chief A. W. Kimball, Hingham, Mass., reports good results with combination straight wall and roof ladders up to 28 ft. length.

Chief Bacil Roberts, Inglewood, Calif., while not recommending long ladders on the side of a truck would carry 14 ft. baby extensions on each side.

Chief Lloyd J. Curry, Kalamazoo, Mich., suggests that 55-45-35 ft. extensions would be a better combination than his present 50 ft. and 30 ft. extensions.

Chief Frank T. Miller, Linden, N. J., would like a 28 ft. extension on each side. Truck now has a 28 ft. straight wall ladder.

Chief Daniel N. Haley, Lockport, N. Y., would prefer a 20 ft. extension in place of 16 ft. extension.

Chief Louis Zimmer, Maplewood, N. J., thinks that the minimum aerial ladder should be 75 ft. but extends his 65 ft. aerial to 80 ft. by attaching a 28 ft. straight ladder with clamps.

Chief Donald E. Simon, Massillon, Ohio, reports that his 65 ft. aerial will not reach the 5th floor and a 75 ft. minimum is needed. He is considering purchase of metal ladders.

Chief Thomas H. Pressler, Mishawaka, Ind., points out that number of ladders should fit city's needs. He would carry two 24 ft. straight wall ladders and increase the 28 ft. straight ladder to 30 ft.

Chief Arthur A. Girard, North Adams, Mass., thinks that a 65 ft. aerial and a 75 ft. aerial would be desirable in his department.

Chief A. Hutch, Nutley, N. J., thinks that an 85 ft. aerial is worth the slight extra cost.

Chief Clyde L. Peterson, Ogden, Utah, thinks ladders should not be nested together. He suggests that 14 and 24 ft. extensions and pompier ladders be carried on side. He would have two 28 ft. straight wall and two 35 ft. extensions on truck.

Chief W. C. Campbell, Pittsburg, Kan., reports that a 28 ft. straight wall is the longest manual ladder carried on his aerial. No long extension ladders are used.

Chief John F. Schroeder, Pontiac, Mich., would prefer a 50 ft. extension to the present 45 ft. extension because it might give access to another story.

Chief George W. Hisscock, Port Huron, Mich., would substitute two 35 ft. extensions for present two 25 ft. straight wall ladders and would also add a second 28 ft. straight wall ladder and a 10 ft. attic ladder. He would prefer two 16 ft. roof ladders to his present one 20 ft. roof ladder.

Chief W. T. McKinney, Rome, Ga., has two 36 ft. extensions and one 40 ft. extension; in addition to the 50 ft. extension. He would add an extra 40 ft. extension.

Chief John Garthe, Santa Ana, Calif., reports that his next truck will have two 35 ft. extensions on sides. He will also have two 24 ft. extensions, two 16 ft. roof and two 14 ft. roof plus a 26 ft. wall.

Chief C. L. Tenney, Santa Barbara, Calif., likes a 20 ft. straight wall ladder on each side. He uses a 40 ft. extension rather than a 35 ft. on the ladder truck but carries a 3-section 35 ft. extensions on pumpers.

Chief Lyle Stevenson, Stockton, Calif., would add poles to the 35 ft. extensions and drop one of the present 25 ft. straight wall ladders. He would add roof hooks to straight wall ladders 20 ft. or under and would add two 10 ft. collapsible ladders.

Chief E. L. Mathews, Tuscaloosa, Ala., likes Standard No. 19. He favors 35 ft. extensions without poles and would prefer a 75 ft. aerial rather than the present 65 ft.

Chief Norman Litz, Waukegan, Ill., suggests that the 85 ft. aerial be standard for cities of 25,000 to 50,000 population. He does not favor ladders on the side unless rescues are frequent.

Digest of Comments by Chiefs Reporting on Two Ladder Trucks

Chief Walter J. Hannan, Aurora, Ill., reports that an 85 ft. minimum is needed in his community due to traffic conditions and parked cars.

Chief Charles Crosier, Battle Creek, Mich., prefers a minimum of 100 ft. ladders for his department which has only two trucks. He uses the 25-ft. extensions most frequently.

Chief Joseph L. Trudell, Bay City, Mich., recommends the advantages of 100 ft. aerials for the small additional cost. He recommends 25 ft. and 30 ft. straight wall ladders and likes 18 ft. combination roof and wall ladders.

Chief John L. Schweder, Bethlehem, Penn., feels that the 75 ft. aerial meets the needs of most communities.

Chief August Schalk, Champaign, Ill., favors metal ladders. He would prefer two 35 ft. extensions rather than the one now carried and would add scuttle hole ladders.

Chief Charles G. Voke, Chelsea, Mass., reports that his trucks carry both 45 and 55 ft. extensions. He also has baby extensions above the running boards.

Chief Frank Veasley, Cleveland Heights, Ohio, thinks that a 75 ft. minimum is desirable but favors the 100 ft. aerials. His 35 and 50 ft. extensions are of aluminum and other ladders of wood

Chief A. McC. Marsh, Columbia, S. C., likes metal ladders. He recommends that ladders over 16 ft. be extensions. He would like two 35 ft. extensions.

Deputy Chief H. A. Patterson, Concord, Mass., considers side ladders are dangerous to personnel riding running boards.

Chief John A. Laughlin, E. Providence, R. I., thinks that ladders should not be nested. His trucks carry 40, 45 and 50 ft. extensions with poles in addition to two 35 ft. extensions.

Chief H. A. J. Dorband, Evanston, Ill., reports that his ladder complement was selected after a 5-year survey. He has 50, 40 and 30 ft. extensions and a total complement of 12 ladders per truck.

Chief Howard Munson, Fond du Lac, Wis., would have 30-40-50 ft. extensions on his next truck in place of present 35 and 45 ft. extensions.

Chief William Tamm, Hammond, Ind., would like one 28 ft. wall ladder in place of one of his present 35 ft. extensions.

Chief Joseph L. Murphy, Kingston, N. Y., thinks that apparatus should be built for accessability of equipment. He feels that the 35 ft. ladder on the side is more accessible.

Chief William B. Hunt, Haverhill, Mass., suggests that both ladders over 35 ft. and side ladders for rescue should be of metal. He suggests a ladder complement of 384 ft. for tractor aerials, pointing out that trucks should carry more ladders as on a number of occasions his trucks have been completely stripped. He suggests that ladders be carried in pairs in multiples of 5 ft. up to a pair of 55 ft. extensions.

Chief L. L. Geisler, Johnson City, Tenn., while favoring a 75 ft. minimum aerial, thinks a 65 ft. ladder is satisfactory on a quint.

Chief Glen W. Smith, Lubbock, Texas, thinks that a 75 ft. aerial should be the minimum but prefers the 85 ft. as more useful. However, he would like a 45 ft. extension in place of the present 50 ft.

Chief Sidney C. Field, Melrose, Mass., finds that the two 35 ft. extensions and 12 ft. roof ladders are very useful on 2½-story frame dwellings.

Chief William Fishbaugh, Middletown, Ohio, thinks that Standard No. 19 is satisfactory. His trucks have 40 and 50 ft. extensions in addition to the two 35 ft. extensions.

Deputy Chief H. T. Vincent reporting for Chief Salamone, **Needham, Mass.,** will replace the present 40 ft. extension with a 45 ft. extension on their new truck.

Chief Bernard M. Griffers, Oshkosh, Wis., wants poles on the 35 ft. extensions. He reports the 14 ft. combination step and extension ladders extremely useful. These are carried on all apparatus.

Assistant Chief T. William Heidner, Pasedena, Calif., states they find 65 ft. ladders inadequate and would like to have a 110 ft. aerial. Their next truck will have two 35-ft. extensions.

Chief J. N. Farmer, Petersburg, Va., was forced to accept a 65 ft. aerial during the war but thinks the 75 ft. should be minimum. His trucks have a 55 ft. extension in addition to either a 40 or 50 ft. extension and two 35 ft. extensions.

Chief Thomas J. McCarrick, Revere, Mass., points out ladder requirements are dependent upon local conditions. His department carries 280 ft. of ladders per truck, including 40 and 50 ft. extensions.

Chief Clyde Wray, Royal Oak, Mich., has one service ladder truck which carries a 55 ft. extension due to the lack of an aerial on this truck.

Chief Hugh F. Morris, San Mateo, Calif., has 100 ft. and one 65 ft. aerial ladder. The latter was bought before longer service aerials were available.

Chief J. L. Evans, Savannah, Ga., reports that the 35 ft. extension is most frequently used. He would add a 16 ft. roof ladder to his complement.

Chief Arthur L. Flynn, Salem, Mass., has two 85 ft. aerials. He points out that a minimum of 75 ft. is needed to overcome setback of buildings. He uses a 25 ft. metal roof ladder to supplement his normal wooden ladders. Ladder selection should meet local conditions. He prefers extension ladders because straight ladders frequently do not reach windows properly.

Chief V. C. Wimmer, Urbana, Ill., thinks the ladders on the side are not desirable for small departments.

Chief Thomas H. Slaman, Wellesley, Mass., has 35 ft. and 45 ft. extensions. All other ladders are straight ladders eqiupped with roof hooks needed in this residential community.

Chief Thomas H. Donnelley, West Hartford, Conn., has a 24 ft. three-section ladder nested in the aerial.

Chief Walter R. Murray, Weymouth, Mass., recommends 12 ft. folding ladders for inside work. He uses a 28 ft. ladder with roof hooks.

Chief W. K. Moore, Yakima, Wash., thinks a 65 ft. ladder would be satisfactory in some communities. His tractor aerial carries two 50-ft. and two 40-ft. extensions. On the quad truck, two 35-ft. extensions are carried in place of the two 50-ft.

Digest of Comments by Chiefs Reporting on Three Ladder Trucks

Chief Peter C. Kenny, Bayonne, N. J., has three tractor-drawn aerials but is interested in four-wheel service aerials. His trucks have two 32-ft. straight wall ladders in addition to two 28-ft. straight ladders.

Chief Steve O'Conor, Beaumont, Texas, suggests an 85 ft. minimum aerial as this requires a truck no larger than a 65 ft. aerial. His department uses no extension ladders longer than 35 ft.

Chief L. F. Lynch, Brockton, Mass., would prefer having both 45 ft. and 55 ft. extensions to the single 50 ft. extension now carried.

Chief Wm. Van Pfefferle, Camden, N. J., says with the exception of the 45 ft. extension his trucks carry straight wall ladders, including a pair of 32 ft. straight wall ladders. In 95% of uses a 16 ft. ladder reaches the second story and the 32 ft. straight ladder reaches the third floor windows or roofs of two-story buildings. These ladders are carried in pairs. The 75 ft. minimum aerial is needed for ladder pipe operation.

Chief O. E. Boggess, Charlestown, W. Va., likes Standard No. 19 and thinks that a 65 ft. aerial is satisfactory in certain locations. He would have side ladders only on a quint where space is at a premium.

Deputy Chief John Fitzgerald, Erie, Pa., suggests that long ladders should be of metal and that 35 ft. extensions could be carried on sides. He likes ladders in pairs with 5 ft. increments, viz. 20, 25, 30, 35. Suggests a 350 ft. complement for tractor aerials.

Chief P. C. Fontaine, Forth Worth, Texas, likes a 65 ft. aerial in residential districts and 85 ft. in business districts.

Chief C. S. Canady, High Point, N. C., considers tractor-drawn type of aerial obsolete in his department, which has both types. Would carry small collapsible ladders on sides.

Chief John H. Rohan, Holyoke, Mass., likes a 35 ft. aluminum extension on the side for rescue and wants pole ladders at lower level to avoid lifting. He will replace 45 ft. extensions with 50 ft. on new trucks. Will omit present 32 ft. extensions and have two more 16 ft. ladders.

Chief E. P. Feaster, Lincoln, Nebr., uses 30-40-50 ft. extensions. He points out that provision of a water tank would change ladder nesting.

Chief Frank S. Sandeman, Long Beach, Calif., suggests carrying a 35-ft. extension on each side.

Chief Arthur Green, Malden, Mass., has one 85 and two 65-ft. aerials. The ladders are satisfactory for residential service.

Chief Edward Gall, Sr., Mount Vernon, N. Y., points out that obstructions near buildings and use of ladder pipe favor a 75-ft. minimum aerial. He would place 25-ft. ladders on sides

Chief John E. Corcoran, Newton, Mass., reports that all of his straight wall ladders except for 28 ft. have roof hooks.

Chief Lester G. Ashby, Parkersburg, W. Va., would prefer two 50-ft. extensions rather than present 40 and 50 ft. extensions.

Chief Wayne E. Swanson, Rockford, Ill., likes junior extensions and folding pole ladders on the sides. He would omit pompier ladders and would reduce the large number of ladders now carried.

Chief J. K. Piercey, Salt Lake City, Utah, likes 3-section extension ladders for narrow spaces. He finds a light metal ladder permits a greater complement per truck. His trucks have both two and three section 35 and 50 ft. extensions. He would add two 16-ft. wall ladders.

Chief William Fitzgerald, Seattle, Wash., reported on his three aerial ladders but also has ten service ladder trucks in use. His trucks carry two 55 ft. extensions and pairs of 25 and 35 ft. extensions. The only straight ladders are roof ladders.

Chief John M. Hill, Sioux City, Iowa, has both 40 and 50 ft. extensions in addition to pairs of 35 and 30 ft. extensions.

Chief V. L. Cruisinberry, Sioux Falls, S. D., has found that one 50-ft. extension per truck is not adequate in his department. His trucks have four 35-ft. extensions which replace all wall ladders above 24 ft. Roof ladders up to 24 ft. are used for wall ladders. He points to the need of suitable device for locking roof ladders to extension ladders.

Chief Willard Compton, Springfield, Ohio, reports that after considerable research it was decided that 30-ft. straight wall ladders are preferred in place of both 28 ft. wall and 35 ft. extensions. He urges that each truck have at least two ladders capable of reaching a given floor and found the 26 ft. wall ladder preferable to a 25 ft. ladder.

Chief Francis A. Murray, Teaneck, N. J., suggests that different body types are needed for residential and congested districts. He suggests that pompiers and 35 ft. extensions may be carried on the sides.

Chief William J. Cawker, Topeka, Kans., reports that while voting in favor of 75 ft. minimum, his department has standardized on 100 ft. aerials. His trucks do not have room for side ladders due to space needed for various appliances.

Digest of Comments by Chiefs Reporting on 4 to 7 Ladder Trucks

Assistant Chief Frank Vernotzy, Akron, Ohio reports that Standard No. 19 was chiefly followed but that their ladder complement for both service and tractor aerials is only 148 ft.

Chief B. J. Padjett, Alexandria, Va., feels that a 100 ft. aerial is a satisfactory minimum for a fast growing community.

Chief H. M. Ayers, Birmingham, Ala., feels that the size of aerial ladders depends upon local situation.

Mr. R. W. Gibb reporting for Chief John F. Collins, **Cambridge, Mass.,** suggests that up to 340 ft. of ladders might be carried on tractor aerials. It is felt that in the future two 35-ft. extension might be used rather than one 35 and one 40 ft.

Chief Jesse G. Hunter, Cedar Rapids, Iowa, has 45 and 52 ft. extensions but quad trucks have a reduced complement of only 168 ft., including two 40 and two 30-ft. extensions. The 65-ft. service aerials carry only 141 ft. of ladders up to a 40 ft. extension.

Chief Donald S. Charles, Charlotte, N. C., recommends the 3-section 50 ft. extension. His department has a standard complement of 252 ft. of ladders and is replacing one service ladder truck annually. His service aerials have preconnected 1½ in. hose, 1,000 ft. of 2½ in. hose and booster equipment. He reports no trouble in mounting the 252 ft. of ladders including two 35 ft. extensions because 14 and 18 ft. roof ladders and 30 ft. extensions are carried on sides.

Chief Gayle V. Coger, Fresno, Calif., reports that so far his department has been unable to standardize its ladders. He recommends a complement of 337 ft. for tractor-drawn aerials. The smaller ladders are carried as pairs but one truck has triple ladder banks and carries three 20 and three 25-ft. ladders.

Chief Stuart M. Potter, Greenwich, Conn., suggests 65 ft. minimum ladders for residential districts and 75 ft. for business areas.

Chief Henry G. Thomas, Hartford, Conn., has only pompier ladders carried on the sides but suggests that 30 ft. extensions on the side might be useful in communities deficient in ladder trucks.

Chief G. N. Gruevin, Manchester, N. H., reports that 40 ft. extensions are the maximum needed on his aerial ladder trucks.

Chief C. D. Simon, Mobile, Ala., reports the 20 ft. extension is the one more frequently used. He would change the present 30 ft. extension to a second 35 ft. and would replace the 45 ft. extension with a 50 ft.

Chief Milton C. Andrews, New Bedford, Mass., prefers two 35 ft. extensions because suitable for elevations from second floor windows to third-story roofs. He finds the 28 ft. straight wall useless at second floor windows and too short for most roofs. He points out that the 50 ft. extension frequently reaches a story above that of the 45 ft. extension. Small solid beam extensions are carried on the sides.

Chief Thomas Collins, New Haven, Conn., reports that 65 ft. minimum is adequate for residential service and 75 ft. minimum is needed in mercantile and manufacturing districts. He prefers 35 ft. extensions on the sides and 50 ft. extension in a single bank with the poles attached.

Chief W. J. Lewis, Norfolk, Va., has three 32 ft. wall ladders, two of which are carried on sides. They now use only straight wall ladders except for the 50 ft. extension but would like one 35 ft. extension in place of one 32 ft. straight wall ladder.

Chief Starling Lambert, Owensboro, Ky., would add a 35 ft. extension and two 28 ft. extensions. Present complement includes pairs of 28 and 25 ft. wall ladders.

Battalion Chief G. E. Brown, Drillmaster, reporting for Chief George E. Courser, **San Diego, Calif.,** They consider side ladders impair access to equipment and are a personnel hazard. Aerials carry two long pole extensions.

Chief Rudolph Anderson, Racine, Wis., tries to follow Standard No. 19. Suggests that the 35 and 45 ft. extensions be carried shoulder high for easy handling.

Chief James T. Blamey, Spokane, Wash., has 356 ft. of ladders on the tractor aerials, including 50 and 60 ft. extensions. Suggests that roof ladders be bedded in the wall ladders with which they are used. His trucks carry pairs of 14 and 16 ft. pompiers.

Digest of Comments by Chiefs Reporting on 8 or More Ladder Trucks

Deputy Commissioner Edward L. Gavin, Buffalo, N. Y., reports that while his department has aerial ladders of 75, 85 and 100 ft. in length, they favor a standard 100 ft. aerial ladder and are considering a 125 ft. aerial. They carry a 32 ft. wall ladder in addition to the 35 ft. extension and 28 ft. straight wall ladder.

Chief Barry J. Houston, Cincinnati, Ohio recommends minimum 85 ft. aerial is well worth the slight additional cost. His trucks carry both 45 and 55 ft. extensions.

Chief W. G. Strickfaden, Columbus, Ohio, favors the 65 ft. ladder in outlying residential areas and 85 ft. downtown. All ladders over 18 ft. are extensions.

Chief Forrest Lucas, Dayton, Ohio, reports that the 65 ft. aerial is adequate in Dayton residential districts. Short ladders for use inside buildings are carried on the sides. One of two 35 ft. extensions has poles.

Chief Allie Feldman, Denver, Colo., urges at least 85 ft. ladder. This provides 23% more ladder for 5% additional cost plus greater ladder pipe utility. He definitely prefers two 35 ft. extensions in place of one 35 ft. extension and one 28 wall and would carry two 50 and two 25 ft. extensions if cost and space permitted.

Chief Edward Blohm, Detroit, Mich., reports that older tractor aerials carried 55 ft. extensions in addition to the 50 ft. extension which is now the maximum provided for both tractor and service aerials. Detroit has 16, 65-ft. aerials in service but the 85 ft. size is now the minimum for new purchases.

Chief Calvin Johnson, Flint, Mich., sees no reason for getting less than a 100 ft. aerial.

Chief Joseph N. Hancock, Indianapolis, Ind., conducted studies of the ladders raised during the last three years before ordering three new aerials which have two 35 and two 28 ft. extensions in addition to the 50 ft. extension.

Fire Comm. John J. Tubridy, Jersey City, N. J., uses three sizes of aerial ladders, with the minimum of 75 ft.

Chief Edgar M. Grass, Kansas City, Mo., finds the 35 ft. extension more easily handled in alleys and under overhead obstructions than the 28 ft. straight wall — Will replace 28 ft. with 35 ft. on new trucks — Favors wooden ground ladders due to numerous electric wires.

Chief John H. Alderson, Los Angeles, Calif., reports that the 85 ft. aerial is the local minimum and his trucks carry 13 ladders totaling 308 ft. with 35 ft. and 14 ft. extensions on each side. These are used singularly or in pairs for rescue.

Chief N. L. Wheeler, Sr., Miami, Fla., reports that his truck officers like the 28 ft. straight wall ladders. Two 14 ft. pompier are carried in high value area — these and small extensions are on the side.

Chief R. C. Malmquist, Minneapolis, Minn., uses 55 ft. extensions and a pair of 38 ft. extensions.

District Chief C. L. Scott, Drillmaster, Memphis, Tenn., reports that while his department has four 65 ft. aerials, they plan to buy only 100 ft. aerials in the future. Their aerials carry 19 ladders totaling 436 ft. with pairs of 50-35-25 ft. extensions and pairs of 25-20 and 16 ft. straight wall and roof ladders.

Chief Harry J. Sommers, Newark, N. J., reports that his department is in the process of standardizing, and that the 35-25-14 ft. extensions are most used.

Chief G. R. McAlpine, Oklahoma City, Okla., had a study conducted by fire department officers. No pole ladders are used in his department as two 35-ft. extensions are the longest ground ladders. Straight ladders which are carried in pairs are considered the safest and easiest to use. He advocates 65 ft. aerials for easy handling and for several other reasons.

Chief George E. Hink, Philadelphia, Pa., had a study of fire department ladders by his apparatus committee and is considering converting existing 65 ft. ladders to 85 ft.

Chief S. P. Adler, Pittsburgh, Pa. The department has 12 aerial ladders in service but still has ten old service ladder trucks which they would like to replace with 65 ft. junior aerials.

Chief Lewis A. Marshall, Providence, R. I., reports that his tractor aerials carry both 45 and 55 ft. extensions due to numerous inaccessible hillside locations where the aerial ladders cannot be positioned. On the service aerials are 40 and 50 ft. extensions respectively. In addition, the trucks carry four 35 ft. extensions making total of 488 ft. on the tractor-drawn aerials. Pumpers in residential districts carry 3-section 35 ft. aluminum ladders.

Chief J. F. Finnegan, Richmond, Va., favors carrying only the small "baby" ladders on sides. He would like to have a pair of 35 ft. and a pair of 24 ft. extensions. All of his ladders under 28 ft. are carried in pairs for the total of 302 ft.

Deputy Chief Louis E. Vogt, Master Mechanic, Rochester, N. Y., reports that his department is 100% equipped with aluminum ground and aerial ladders. 65 ft. aerials are being gradually replaced with longer ladders.

Chief Fred H. Witler, Master Mechanic, St. Louis, Mo., observes that the 85 ft. tractor aerial is easier to maneuver than service aerials having shorter ladders and the longer ladder is needed because of building setbacks. The 20 ft. straight wall ladder is the most popular.

Chief Rene Patingre, Springfield, Mass., has 65-75-85 ft. aerials. He would prefer two 28 ft. straight wall ladders to the two 35 ft. extensions.

Chief Francis R. Ferren, Syracuse, N. Y., reports the last three ladder trucks purchased each carry 13 ladders totaling 290 ft. with a 35 ft. extension, the longest ground ladder. Most of the ladders are carried in pairs.

Chief Herbert F. Travers, Worcester, Mass., thinks that the ladders selected should be based upon local factors such as building heights, life hazard, growth of community. He likes the 35 ft. extensions. His engine companies carry 25 ft. extensions and 12 ft. roof ladders of metal.

Traffic Lights "Controlled" in Maywood, Illinois

TO LESSEN the possibility of collision by emergency vehicles, the Village of Maywood, Illinois, recently installed a special electronic system covering every intersection controlled by traffic lights. Radio transmitters mounted on the dash boards of fire and police vehicles can be operated to change the lights at intersections four blocks in advance along the direction of travel.

The Maywood Fire Department, headed by Chief David C. Smith, now has the radio equipment installed on all apparatus and chiefs' cars, since the new control system was put into effect on June 2.

The radio transmitting units usually are installed just below the glove compartment (see picture at right), and have two switches, one for use when the vehicle is travelling in a general North-South direction, and the other for East-West travel. "Jewel" lights on the radio panel indicate which directional signal is being transmitted. As fire apparatus moves out of quarters, the driver or officer in the cab, flicks the appropriate switch. Each traffic signal has a radio receiver which operates the lights as the signal is received. All signal lights four blocks ahead of each vehicle change to a flashing yellow "Caution" signal in four directions for five seconds. Then the red "Stop" signal appears and remains until the vehicles signalling for right of way have passed approximately 200 feet beyond the intersection. The lights then return to their regular cycle of operation.

When two emergency vehicles approach an intersection from different directions, with signal transmitters operating, a flashing yellow traffic light shows in four directions, in addition to the steady red. These combined signals inform the drivers where to expect other emergency traffic and they can take proper precautions before entering the intersection. Chief Smith appreciates that a thorough motorist education program is necessary to acquaint the general public with the operation of the signals.

Electricians install new emergency traffic control signal system at one of the 12 intersections in Maywood.

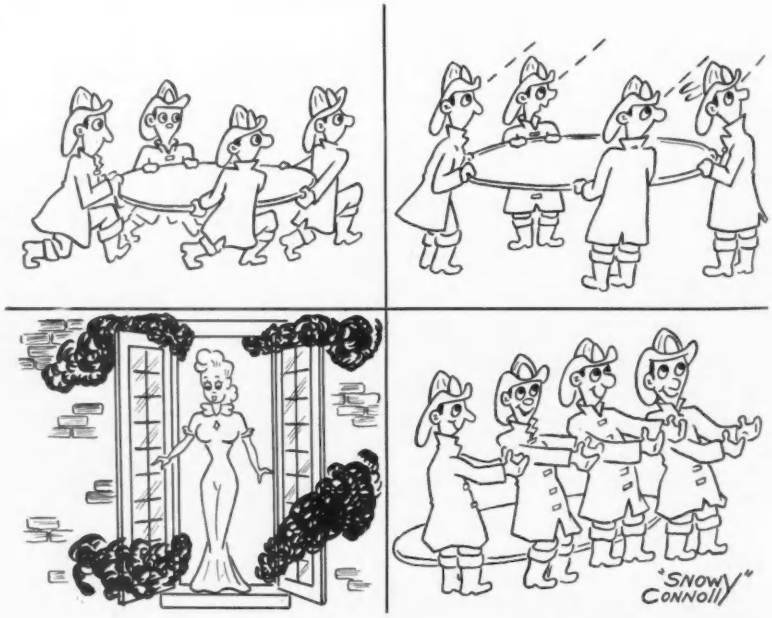
Maywood's Fire Chief David C. Smith and V. Lee Cook, president of Electronic Protection, Inc., examine traffic light control transmitting antenna on chief's car.

Engineer Henry Baethke of the Maywood Fire Department demonstrates control box in the cab of a pumper. The two switches are for North-South or East-West travel.

Larger transmitting antenna is installed on pumpers and other heavy apparatus of the Maywood Fire Department.

Maywood's new traffic control equipment was manufactured and installed by Electronic Protection, Incorporated, 452 W. Chicago Avenue, Chicago, Illinois. The manufacturer estimates that the cost of the system to a typical municipality would amount to about 14 cents per emergency vehicle per day.

On June 2, the system was demonstrated to authorities from more than 50 communities near Chicago, including traffic engineers and police and fire officials from Moline, Waukegan, Chicago, Cook County and the State of Illinois.



For Camp Property Owners

MANY owners of property located in wooded areas can gain protection against fire damage by following the suggestions of NFPA No. 224 — "Fire Prevention Standards for Homes and Camps in Forested Areas." This 24-page pamphlet contains the recommendations of the NFPA Forest Committee for basic fire protection and fire prevention principles which should be applied to homes, camps and other dwellings to protect against brush and forest fires. Copies may be obtained from the NFPA Executive Office for 35 cents each.

Convention for Volunteers

BETHEL, Connecticut, in observing its centennial this summer will be host to one of the largest conventions of volunteer fire departments in the history of the State. On August 12 and 13 more than 115 volunteer fire companies from Connecticut, Long Island, and Westchester, Putnam and Dutchess Counties in New York, and from the New England States are scheduled to meet in the town. Host fire chief will be Chief Herbert Webb, who heads the Bethel Fire Department.

According to reports some 60 bands, 100 pieces of fire apparatus, and some 6,000 fire fighters and their families will participate in the 2-day meeting. Business sessions for the convention are scheduled for Friday, August 12, with the feature parade and festivities following on Saturday, August 13.

Pup for a Prize

This ten-week-old Dalmation pedigreed puppy named "Chief" was recently presented to the Providence, Rhode Island, Fire Department, by Central Mutual Insurance Company, Van Wert, Ohio. Each year the Company presents a Dalmation puppy to the Grand Award winner of the National Fire Waste Contest sponsored by the United States Chamber of Commerce. The Providence Fire Department, headed by Chief Lewis A. Marshall, won the Grand Award for 1954. (See FIREMEN for May, 1955.)

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The improved Powhatan "Sensible-Lug Couplings" are precision tooled and manufactured of only the best high-grade materials. They set a standard that is "tops" in this specialized field of fire-fighting equipment. The curved surfaces of this modern coupling enable the hose to glide easily over all obstructions, thus preventing snagging, an important safety and economical feature appreciated by those who know.

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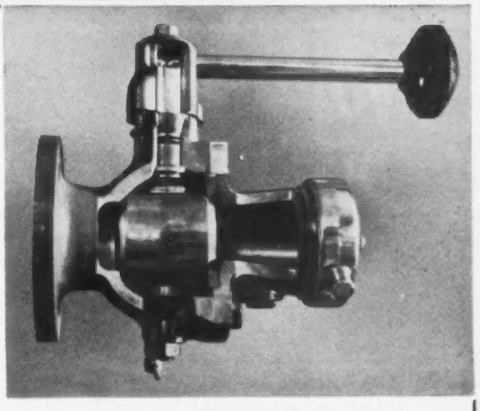
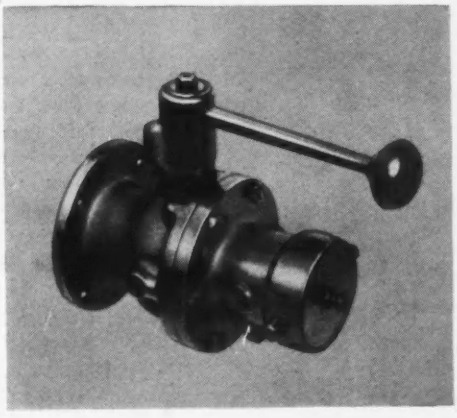
HALE TYPE "BL"
Discharge Valve

This popular HALE ball-type BL Valve is not only furnished on new HALE Pumps, it is also available for easy installation on ALL Hale Fire Pumps now in service, regardless of age.





Above — View of BL Valve cut away to show internal construction. Valve is in open position with cap on.

Note: New revised Bulletin No. 293 now available covering complete details. Send for yours today!

Hale Fire Pumps are built in all standard capacities.

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HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.

Comparing Fog and Solid Streams on Large Fires

(*Continued from page 11*)

On April 3, 1954, we had an alarm come in at 3:25 A.M. for a fire in the Germania Hall at 190 Jefferson. The building had been constructed in 1894, with stone and brick outside walls, and wood joist construction on the inside. The front and rear portions were two stories high and the center section, housing a dance hall, was one story high. The building was 60 ft. wide and 250 ft. long. Occupancies included the dance hall, a printing firm, book store and apartments at the rear of the building. All stairways in the building were wood and were open. The building was not sprinklered. When first alarm companies arrived on the scene, the dance hall was heavily involved. The fire spread to the printing firm at the front of the building and to the apartments at the rear. The fire was initially attacked with hand lines from the inside, but the roof over the dance hall collapsed shortly after the companies had entered the building, and all lines were withdrawn to the outside. At this time we put two aerials into operation, equipped with "J-200" nozzles and a deck gun equipped with a "JN-200" fog nozzle. The heavy fog streams were first used to knock down the heat directly over the fire, and then were moved in closer and operated directly into the building. In approximately 30 minutes we had the fire under control and men re-entered the building to knock out small spot fires and complete overhauling.

The fire did considerable damage to the dance hall in the building, but the front and rear sections did not suffer heavy structural damage. The entire building has since been rebuilt and occupied. During this 3-alarm response we used seventeen 2½-in. lines on the fire to supply one JN-200 and two J-200 nozzles, three lines with "Mystery" fog nozzles, and four with 1¼-in. straight stream tips.

The Rex Hotel fire provided a good example of what can be done with heavy fog streams. On October 23, 1954, a fire started in the basement of this 2- and 3-story brick, wood joisted building. The first floor was occupied by a number of retail stores and the second and third floors by the hotel. The building contained two open stairways, one from the front of the first floor to the third, and one in the rear, from the basement to the third floor. There was also an outside fire escape on the West side of the building.

When first alarm companies arrived on the scene, heavy smoke was coming from the doorways and from a number of windows on the upper floors. A second alarm was immediately sounded and rescue work started at once. This, of course, necessarily delayed fire fighting operations for a few minutes. However, we used self-contained masks and in a short time our men had made a thorough search of all rooms and hallways and had cleared everybody out of the building. Shortly after, when the fire was discovered to be mostly in the basement of the building, a number of gas explosions occurred, injuring personnel and forcing us to leave the basement. The fire gained in intensity and broke through the first floor at several points. However, this was as far as it got. We used a number of our "Stream Masters," with J-200 nozzles to cover the open stairways and also made use of our new dual and "quad" cellar pipes, equipped with the same type nozzles.

We were able to control the fire rapidly with these devices, and as soon as the gas supply to the basement was cut off, we were able to enter and complete extinguishment. Two and a half hours after the fire started, we had it completely under control and most of the extra alarm companies had been put back in service. Three alarms were turned in for this fire and we used a total of 27 lines to supply the various appliances.

On May 11th we had a 3-alarm fire at the Mid-South Fairgrounds, which completely destroyed a 200 x 400 ft., 1-story wood frame cattle barn. The fire was of incendiary origin and when it was discovered, had already involved most of the building. The first company on the scene reported that the roof was falling in before they had a line laid out.

We were handicapped at this fire by a very weak water supply and a serious exposure hazard in the form of a two-story brick, wood joist administration building, only 50 feet west of the burning barn. Our first concern was the protection of this building since with the limited water supplies we had, there was no chance to save any of the barn. We used an aerial ladder with a J-200 nozzle supplied by two lines, initially to protect the rear of the exposed building. The radiated heat between the two was very intense and paint on the exposed building had begun to blister, when the aerial pipe went into operation.

INSTALL *Automatic*
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Here is a revolutionary new, low cost fire detector that automatically "Screams out" a 15 minute, 95 decibel warning whistle when fire starts in your plant and your home.

- EASILY INSTALLED
- COMPLETELY AUTOMATIC
- TESTED & LISTED BY UNDERWRITER'S LABORATORIES, INC.
- GUARANTEED FOR LIFE

Write for complete details

FYR-LARM CO., INC.
243 Broad St., Summit, N. J.

As soon as the nozzle was opened up, there was a very noticeable "cooling off" of the heat in the area. The aerial stream was played between the two buildings to form a water curtain and absorbed much of the heat generated by the burning barn, along its West side. We also put a deck wagon into operation on this side of the barn. Using a JN-200 nozzle supplied by four lines, we drove the truck between the barn and the Administration Building; first using it as a water curtain, then to kill some of the fire. After the heat had been knocked down, we put a 1¾-in. straight tip on the deck gun and used it during the final extinguishment.

Occupancy Fire Record

AN ILLUSTRATED report on the fire experience of restaurants has been published as the latest of the "Occupancy Fire Record" series prepared by the NFPA Fire Record Department. This 12-page bulletin reports sixty-two fires which damaged, or destroyed restaurants during the past five years. It summarizes recurring factors which influenced fire spread and also gives a breakdown of the causes of the fires. Copies may be obtained for 50 cents each by writing to NFPA Publications Department. Ask for "FR 55-5."

Hose Threads Standardized in New York State

ACCORDING to a report from Training Coordinator Leonard C. Silvern, the New York State Division of Safety has promulgated regulations for standardizing fire hose thread specifications. The Division is now headed by Director of Safety Michael H. Prendergast.

The State Fire Mobilization and Mutual Aid Plan now prescribes the American National Thread for the fire service. This is the thread recommended by the NFPA in Standard No. 194A — "Standard Threads for Fire Hose Couplings." This standard has also been adopted by the National Board of Fire Underwriters, the American Standards Association, the International Association of Fire Chiefs and many other organizations.

At present five counties have included regulations prescribing this thread in their mutual aid plans.

'Choice for Quality the World Over'

INDIAN FIRE PUMPS are RIGHT ON THE BALL

Be sure to have a stock of **INDIANS** in your department. Fire Chiefs call them "a one man Fire Department" and say "they are worth their weight in gold."

Approved by UNDERWRITERS' LABORATORIES

The No. 147 adjustable Nozzle will throw any type of spray or fog mist and also will hurl a powerful straight stream of over 30 ft.

For all class "A" fires; and many small class "B" fires can be extinguished with **INDIAN FIRE PUMPS.**

The INDIAN is available in the lever type, known as our No. 80 INDIAN.

CATALOG ON REQUEST!

"Please ship six No. 90G Indian Fire Pumps at once. We have 12 Indians in use at the present time and we could not get along without them in our fire department. You cannot beat the Indian Fire Pump for putting out fires."
John H. Mullaly, Jr., *Fire Chief* Millville, Mass.

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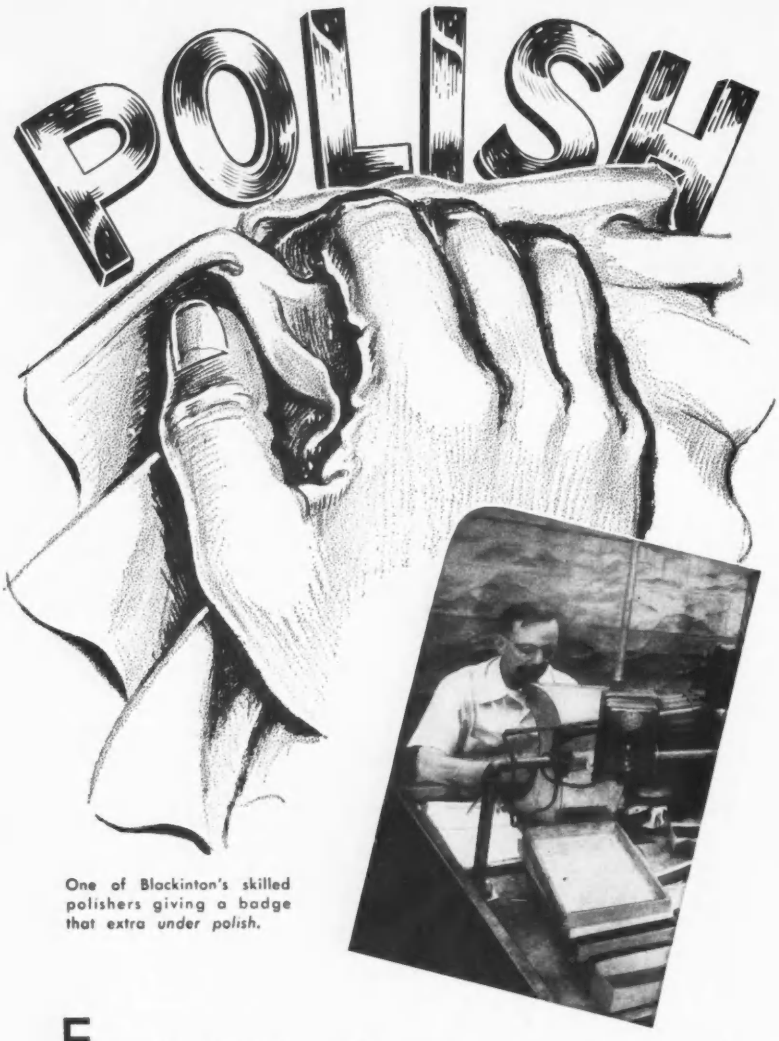

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ASK YOUR EQUIPMENT SUPPLIER TO SHOW YOU ACTUAL SAMPLES OF BLACKINTON BADGES.

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V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

BADGES AND UNIFORM INSIGNIA FOR EVERY SERVICE AND INDUSTRY.

Hook for Many Uses

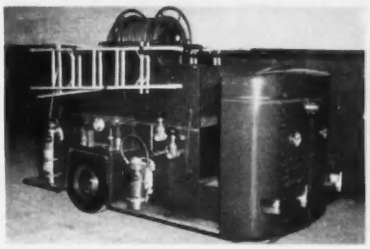
DEPUTY Chief M. A. Halligan of the New York City Fire Department has designed another useful piece of equipment as a companion to the multi-purpose "Halligan Tool." This new item is a special hook for ripping tin, wire lath, boards, windows and door frames when fire fighters are "opening up." The hook is attached to handles of 3, 6 and 10 ft. lengths. The head of the hook is pointed to allow quick insertion into ceilings, after which a quarter-turn permits the hook to be rocked through furring strips or wooden lath. Picture above shows its use on a base board. The special head attachment is slotted for closing valves on gas meters, stoves and on the New York type hydrant. Further information may be obtained by writing to Deputy Chief Halligan, 1505 Metropolitan Avenew, New York 62, New York.

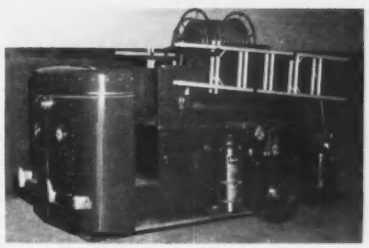
Apparatus on Tour

THE Ward-LaFrance Truck Corporation of Elmira, New York, has begun a program of tours demonstrating its fire pumps to fire chiefs, other municipal officials and fire department members. Sales engineers demonstrate the pressure and volume capacities of the apparatus and show fundamental evolutions of pumper and hose line operations. The first tour, featuring the "Fireball Special" pumper, was conducted through western Pennsylvania and western and southern New York State, from June 3 to June 18. Other tours are scheduled for various states. Fire chiefs who would like to have demonstrations in their communities can obtain information on available dates by writing to the manufacturer.

Chief Lyon Appointed

NEW chief of the St. Louis, Missouri, Fire Department (see page 32), is Hugh Lyon, (left) who has been appointed to succeed retired Chief Walter H. Kammann. Chief Lyon joined the St. Louis Fire Department in 1914, was promoted to lieutenant in 1922, to captain in 1930, made Battalion Chief in 1938, and became Deputy Chief in 1950. Also shown above are St. Louis Mayor Raymond R. Tucker, and Director of Public Safety Joseph P. Sestric.





"Inner Plant" Fire Pumper

THIS small, mobile pumper, designed especially for "inner plant" industrial fire protection, is manufactured by Gordon W. Osborne, P.O. Box 15, Thurston Station, Rochester 19, New York. Powered by a Wisconsin 4-cycle, 2-cylinder engine, rated to give 13.3 horsepower at 2600 rpm, the truck can move at 15 mph and has a turning radius of only 64 inches. The pump is designed to give 84 gpm at 150 pounds.

Also featured are a 150-gallon tank, a 100-ft. "continuous flow" reel of 1-in. booster hose, four 6-ft. sectional ladders, 200 ft. of 1½-in. hose, two 6-volt hand lanterns and a standard axe. Five extinguishers are mounted in brackets, including carbon tetrachloride, carbon dioxide, dry chemical, foam and soda acid types. Also carried are 1-in. and 1½-in. nozzles.

According to the manufacturer this model can be converted to a dry chemical unit, carrying three extinguishers of 150, 300 and 500 lb. size. Larger wheels and tires can also be used when the vehicle is designated for outside plant protection.

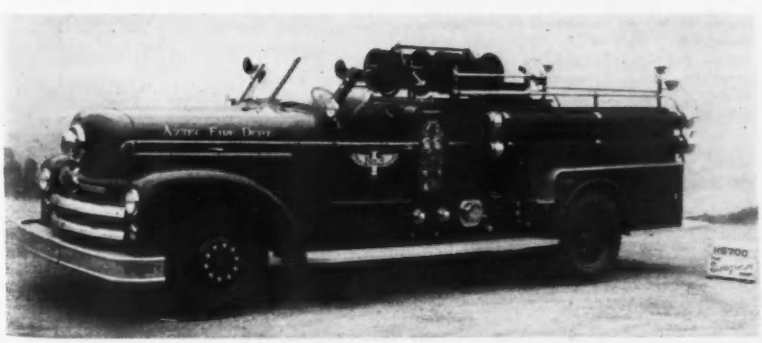
Unique Lighting Truck Built by City's Employees

MEMBERS of the Wires Department of the City of Waltham, Massachusetts, recently built this special floodlighting truck for use at major fires and other emergency services. It can be operated by only one man and within two minutes can produce 128,000 candlepower for illumination.

The specially designed body on the 1½-ton chassis has a large center space with two side cabinets opening to the outside, each housing four power-wound line reels of 450 ft. of tyrex cord with attached cord connector. Smaller compartments at the rear of the truck carry eight 500-watt hand lights.

A permanent tower on the body supports three 1000-watt floodlights, and can be raised easily and rotated in a 360 degree arc. An extra 1000-watt spotlight is carried in the center space and may be bolted temporarily on either reel compartment.

Current for the lighting equipment is supplied by two 5 KW gasoline powered generators made by Kohler Company of Kohler, Wisconsin. These are in a special compartment in back of the truck cab, and can produce up to 10,000 watts of 110/220 volts AC.



Pumper for Aztec, New Mexico

(Left) The Aztec, New Mexico, Fire Department recently acquired this 1,000 gpm Seagrave pumper which features a 2-stage bronze pump with a 500-gallon tank; a separate 4-stage high pressure pump which can be operated while the vehicle is in motion; a proportioner with a 5-gallon wetting agent tank and a 20-gallon foam liquid tank; and extra 2½- and 1½-in. connections at the rear. The pumper also features a 268 hp Seagrave V-12 engine specially adapted for operation at the 5,500-ft. elevation of Aztec. It was delivered to the Department by the Thunderbird Sales Corporation, Phoenix.

SOMETHING NEW HAS BEEN ADDED . . .

Circul-Air

"A-Z" FIRE HOSE WASHER

- Washes and Drains in One Operation
- Cleans Thoroughly — With or Without Detergent
- Uses Clean Water Throughout Process
- No Immersion Tanks to Collect Sediment
- Semi-Automatic — One-Man Operation
- Low in Cost — Easy to Use
- Keeps All Hose Off the Floor — Wet or Dry — Clean or Soiled
- Loading Turn-Tables Useful also for Re-Loading Hose Truck and Dryer

The new, inexpensive A-Z Hose Washer drains and rinses the hose as it washes. 4 Roto-jets constantly spray hose with clean, fresh water—all sediment is flushed through collecting pan and down the drain. Semi-automatic, the A-Z is operated by just one man. No strain. No fatigue. Turn tables keep the hose OFF the floor. They're excellent for reloading truck (several lengths may be stacked on each) or loading the hose dryer.

Write for New Folder

CIRCUL-AIR HOSE CONDITIONING EQUIPMENT

The patented electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life!

No other method is so fast — so economical — so easy to use. If *you* haven't enjoyed the benefits of Circul-Air, we suggest you investigate its merits now.

LABORATORIES APPROVED

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Accepted as the preferred drying medium in most of America's largest fire departments . . . Approved by Underwriters' Laboratories . . . and Canadian Standards Association. Recommended by all leading fire hose manufacturers and Fire Chiefs all over America and Canada.

THESE TOWNS . . . AND 3000 OTHERS PROTECT THEIR HOSE WITH CIRCUL-AIR

Atlanta . Akron . Allentown . Augusta . Boston . Birmingham . Binghampton . Cincinnati . Cleveland . Columbus . Chicago . Dayton . Detroit . Erie . Fort Smith . Flint . Galveston . Grand Rapids . Houston . Ithaca . Jacksonville . Kalamazoo . Kansas City . Louisville . Lafayette . Memphis . Milwaukee . Miami . Monroe (La., Mich.) . Niagara Falls . New Haven . New Britain . Nashville . Oklahoma City . Omaha . Philadelphia . Providence . Pensacola . Rochester . Seattle . Savannah . Springfield . Shreveport . Toledo . Topeka . Utica . Washington . Wichita . Wheeling . Winnipeg . Youngstown.

If you are planning to build, or remodel, send for our new brochure "FIRE STATION DESIGN."

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Dates to Remember

Arkansas: The Arkansas State Fire School will be held at Little Rock, Arkansas, July 11–14. Write to J. C. Ruppert, State Supervisor, Trades and Industrial Education, 18th and Spring St., Little Rock.

Arizona: The Arizona State Fire School will be held at Phoenix Technical School, October 20–22. Write to Director Jake Siken, Battalion Chief, Phoenix Fire Department.

Delaware: The 7th Annual Short Course for Firemen will be held in Camden and Wyoming, July 16–17, and July 23–24 respectively. Write to Frank M. Forstburg, Delaware State Board for Vocational Education, 511 West 8th Street, Wilmington.

Indiana: The 22nd Annual Indiana State Fire School will be at Purdue University, September 13–16.

Iowa: The 9th Annual Fire Inspectors' School will be held at the College, August 2–5. Write to Mark Brosier, Supervisor, Firemanship Training, 110 Marston Hall, Iowa State College, Ames.

Michigan: Alert Firemens Association's second annual Volunteer Firemen's Fire Training School to be held September 10th & 17th in Lansing. Write to Chief Earl Miller, Gen. Chairman, Lansing Township Fire Department, Lansing, Michigan.

Missouri: The Central Missouri Fire Conference will be held at the University of Missouri in Columbia, July 26–28. Write to Director Joseph I. Fetters, University of Missouri, Columbia.

Montana: The State Fire School will be held at Polson, August 24–27. Write to Chief Clayton Brown, Polson Fire Department, Polson.

Ohio: The Ohio State Fire School will be held at Columbus, September 12–16. Write to Robert M. Reese, Supervisor, Trade & Industrial Education Service, Department of Education, 220 S. Parsons Ave., Columbus, Ohio.

The annual conference of the Ohio Fire Chiefs' Association will be at the Commodore Perry Hotel in Toledo, August 18–20. Write to Chairman A. F. Papenhagen, 545 North Huron Street, Toledo 5.

Ohio State Firemen's Association Convention, August 19–20. Write to General Chairman, Chief Robert A. Metz, 3673 Eyrick Ave., Mack Fire Dept., Cincinnati 11.

Pennsylvania: As announced in the April issue of *Firemen*, the Pennsylvania State Fire School is now in operation at Lewistown. Courses scheduled include: Standard Fire Fighting; Advanced Fire Fighting, July 11–15; Annual Fire School Round-Up, August 1–5; Fire Service Instruction Course, August 8–12; Fire Apparatus Operation and Maintenance Course, August 22–26; The same sequence of courses will follow during the months of

September and October. Further information may be obtained from Edgar A. Spotz, Advisor, Fire Service Training, Public Service Institute, Lewistown, Pennsylvania.

Tennessee: The 12th Annual State Fire School will be held at Middle Tennessee State College, Murfreesboro, August 22–26. Write to Homer S. Elkins, Director, Tennessee State Fire School, 215 Chestnut Street, Chattanooga 3, Tennessee.

West Virginia: The 25th Annual West Virginia State Fire School will be held at West Virginia University in Morgantown, July 25–29. Write to R. E. Hanna, Jr., Director of the West Virginia Fire School, at the University in Morgantown.

Wisconsin: The State Fire School at Madison will be held on August 15–17. Contact H. C. Thayer, Chief, Trade and Industrial Education, State Board of Vocational and Adult Education, Madison.

Television for Forest Fires

TELEVISION equipment for spotting forest fires was demonstrated on June 15 to the Forestry Conservation Communications Association at Charleston, South Carolina. Manufacturer's representatives from Raytheon Manufacturing Company, Waltham, Massachusetts, showed how special cameras can be mounted in forest lookout towers to rotate continuously in full circle, scanning the forest area and relaying pictures continuously to "monitors" in the forest service headquarters. The cameras are operated, reversed, or stopped by microwave remote control.

As each camera rotates, it shows an azimuth scale of the forest area within its range of "sight." When fires are spotted cameras may be stopped with the lens trained on the fire and the azimuth reading, or "bearing" noted. Bearings from two or more towers permit the fire to be located on a map by triangulation.

The Raytheon microwave link used in this demonstration is known as KTR-100 and consists of portable units which are attached to the television cameras. Lightweight aluminum reflectors, mounted on tripods which can be installed on the roof of forest service headquarters, can pick up the microwave signals from the cameras.

Attending the demonstration in Charleston were forestry officials, federal conservation representatives, and forest management executives.

Your Choice of an Engine-Generator IS IMPORTANT

That's why — before you buy *any* engine-generator *you should examine* the models developed by United States Motors Corporation especially for fire fighting, safety and utility.

Each unit rests firmly on a foundation of over 65 years of engineering and manufacturing experience and world-wide installations in fire-fighting equipment.

Fast-starting dependability . . rugged, light-weight construction, complete simplicity — yet wide adaptability as a source of power for lights, electric saws, drills, suction fans, acetelyene cutting and other fire-fighting requirements where dependability is *essential.*

For that "little extra" that can mean "so much," U. S. Units carry a generous "overload capacity."

Check U. S. Motors before buying *any* engine-generators. U. S. builds complete line from 200 watts to 250 KW stationary, mobile or portable, gas, gasoline or diesel fuel Write for complete details.

Typical light weight, compact 2500 Watt Unit. 300 Models to choose from.

UNITED STATES MOTORS CORPORATION LIGHT US POWER OSHKOSH • WISCONSIN

United States Motors Corporation

424 Nebraska Street Oshkosh, Wis.

Fire Department Emergency Bus

THE Freeport, New York, Fire Department recently placed in service this completely equipped emergency bus, built by The Flxible Company, Loudonville, Ohio. It contains a practical supply of first aid and mechanical equipment and features four hospital-type adjustable cots, each having an oxygen outlet with a slip connector, cabinets to accommodate medical equipment, including surgeon's bags; two hot water heaters, and a heated cabinet for blankets. Hooks are provided for plasma bottles.

Ventilation is facilitated by four sliding windows, each 5 ft. long, two power vents, and two hatch vents in the roof, all regulated from the inside. Four electric fans are also provided. The coach has a 5-KW, 115-volt generator which supplies current for interior fluorescent lights, flood lights, sterilizer and hot water lines. It is 31 ft. 3 in. long, 7 ft. 11 in. wide and 9 ft. high, exclusive of siren and rotary ray light on roof. Air brakes, air horns and 2-way radio are other features.

Interior of the Freeport Fire Department's emergency bus showing the four adjustable cots. Note cabinets below and ventilating fans.

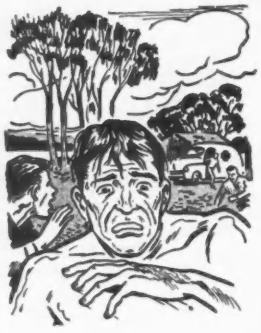
First aid and emergency equipment carried includes inhalators, resuscitators, oxygen masks, canister masks, stretchers, basket, flood lights, ladder, pike pole, axes, jacks, splints, crow bars, sledge, oars and oarlocks, wirecutters, refrigerator carrier, acetylene torch, electric saw, grappling hooks, wading boots and life ring.

NFPA Regional Meeting

READERS of FIREMEN who live in the South can look forward to participating in the NFPA Regional Meeting, scheduled to be held in New Orleans, November 28–30. Headquarters for the meeting will be at the Jung Hotel. Louisiana State Fire Marshal Sidney Bowman is Chairman of the Sponsoring Committee which is taking care of local arrangements for the meeting. A proposed program for the meeting will appear in a future issue of FIREMEN.

Paid, call or volunteer fire fighters who attend these regional meetings in uniform, customarily are admitted to the general meetings without being charged the nominal registration fee.

WHEN THE
PUBLIC DEMANDS
ACTION
GIVE IT WITH
AQUATIC
SEARCH and RESCUE
EQUIPMENT



WRITE FOR FACTS:
For four years, professional rescue squads have put Aquatic Search and Rescue Equipment to severest tests in the United States and Canada . . . in rocky lakes, log filled rivers, weedy gravel pits, deep wells and mine shafts . . . under every conceivable water rescue and recovery condition.

AQUATIC KITS SOLVE ALL COMMON SEARCH PROBLEMS AT LOW COST
Scientifically designed, Aquatic's results have been consistently good. Ruggedly constructed, these lightweight, easily handled kits continue to "take it." Free folder tells how others use Aquatic Diver, Control Tubing, Beaver Tail, Cradle Hook, Sounding Tube, Drift Hook, Ring Buoy and Emergency Stretcher. Simple to operate. Low in cost. Write for full information today.

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SEARCH and RESCUE KIT

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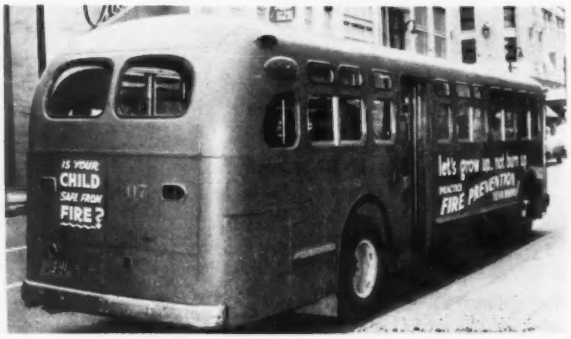

Memphis Bus with A Message

The Memphis, Tennessee, Street Railway Company is cooperating with the Fire Department by painting fire prevention messages on the buses which operate on the city streets. The company assumes the expense for changing and painting the signs every three months under the direction of the Fire Department, headed by Chief John C. Klinck, and have been following this practice for the past three years. Currently the Fire Department is engaged in "Operation Octopus" which includes public education in the home inspection program, child care, housing surveys and the safe use of kerosene.

ALL TYPES...ANY CLASS FIRE!

Since different fire hazards require different types of fire extinguishers, PYRENE—C-O-TWO manufactures all types . . . the finest and most complete line on the market today.

When doing business with PYRENE—C-O-TWO, you receive unbiased advice on what is best for your particular fire hazards, whether class A, B or C. Also, there is a well-rounded sales engineering organization having nation-wide representation to render top quality service wherever you're located.

Don't take unnecessary chances . . . the extensive fire protection experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Get complete facts now!

PYRENE — C-O-TWO

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

The "NEW YORKER"
(No. 5A - Regulation)

A national standard for a hundred years.

Other Leather Helmets in other weights, in regulation and drop brim style.

CAIRNS LEATHER HELMETS

The Least Expensive
Because
They Last the Longest

Write for Catalog 350

CAIRNS & BROS., INC. - Allwood, Clifton, N. J.
Outfitters to Firemen Since 1836

WATER when and where you want it!

with HARODIKES
Portable Canvas Water Tanks
THE ECONOMICAL AND EFFICIENT WAY
TO CARRY AND STORE WATER.

ON THE JOB - ON THE SPOT
KEEPING AMERICA GREEN

EXCLUSIVE FEATURES
- Self Supporting
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Available in 150 & 300 gallon sizes

A WATER SUPPLY AT THE SCENE OF THE FIRE

Write TODAY for Full Information and Price List
HARODIKES INCORPORATED
NORTH DIGHTON, MASSACHUSETTS

Deputy Chief Halligan F.D.N.Y.
(Inventor of the HALLIGAN TOOL)
has invented a new hook

available in 3′, 6′ and 10′ lengths.
A WOW for tin, wire lath, all types of boards, window and door frames, etc.

WRITE TO: M. A. HALLIGAN, 1505 METROPOLITAN AVENUE, NEW YORK 62, N. Y.

- Smoking in a ship's hold can cause this.
- Smoking on the piers and in a ship's cargo hold is a constant fire hazard.

DON'T SMOKE ON THE JOB

U.S. COAST GUARD - BOSTON FIRE DEPARTMENT
BOSTON SHIPPING ASSOCIATION INC.

Waterfront Fire Prevention

The U. S. Coast Guard, the Boston, Massachusetts, Fire Department, and the Boston Shipping Association, Incorporated, have cooperated in publication of this flier drawn by Commander Moulton of the U. S. Coast Guard. The fliers are 3½ x 5½ inches in size and are placed in the pay envelopes of longshoremen and other personnel who work on the waterfront. Every three months the design and messages on the fliers will be changed.

"Dick" Sherwood Retires

The Rockwood Sprinkler Company of Worcester, Massachusetts, announced the retirement of N. D. "Dick" Sherwood effective June 1, 1955. For the past 47 years he has been associated with the automatic sprinkler industry and during the last twenty years has been Special Hazards Consultant and Manager of the Rate-of-Rise Department of the Rockwood Sprinkler Company. During his service he made many friends in the fire service, and among fire insurance associations and safety directors in industry.

Does every man in your fire department get the chance to subscribe to FIREMEN? Your fire department can order extra subscriptions at $1.25 each when it renews membership in NFPA.

FOR FIREFIGHTING OR BOOSTER SERVICE the highly portable, light-weight Marlow Fire Pump can be quickly moved to a fire or water source that a pumper can't reach. For fire-fighting, the unit boosts hydrant pressure or pumps from any pond, or shallow well. Small departments can dispatch it to dreaded second fires. For booster service the pump can be carried by two men to inaccessible water sources. The pump pushes water up hills or over long distances to supply pumpers or tank trucks.

marlows are portable

The Marlow Fire Pump, weighing only 160 pounds ready to operate, *can be placed in service 30 seconds after starting!* Powered with an 8½ hp. engine, the unit runs unattended and delivers up to 100 g.p.m. at 80 p.s.i. It can be stored in pumper compartments or car trunks. Meets recommendations of National Fire Protection Association and performance exceeds minimum requirements. For details, see your Marlow dealer or write for Bulletin F-04.

MARLOW PUMPS • RIDGEWOOD, NEW JERSEY

DIVISION OF BELL & GOSSETT COMPANY • *Branch Factories: Longview, Texas • Morton Grove, Illinois*

St. Louis, Missouri, Gas Mask Training

UNDER the direction of Chief Instructor Thomas Godfrey, members of the St. Louis, Missouri, Fire Department recently completed an intensive gas mask training program. The Department, headed by Chief Hugh Lyon, has 1,050 men in 43 engine companies, 23 hook and ladder companies, and a rescue squad.

During the 44-day period the fire fighters received instruction in groups of three companies. One group worked in the morning and two in the afternoon, the latter session including all chief officers and their aides. Each training session lasted about four hours. The first part consisted of a lecture and demonstration of the "All Service" and "Chemox" gas masks; then each man was instructed individually to assure that he donned his mask with the necessary airtight adjustment. A showing of the film "You Bet Your Life" was also included as part of the training.

Practical application of the instruction was obtained in fires in the department's smoke room, which is a steel frame, wired glass enclosure, approximately 17 by 13 by 9 ft. in size. Each man was required to enter this structure while wearing his mask, practice knot tying, rescue other fire fighters and two 90-pound dummies, and several other physically demanding tasks. In addition each man wore his mask while chopping large logs with fire axes, thus experiencing the breathing conditions that confront the gas mask wearer during laborious work.

During the 44-day period the department used a total of 176 "Chemox" canisters and about 90 all-service canisters. This represented a total expenditure of $1400, or approximately $1.35 per man. A large portion of this expense was shared by the Office of Civil Defense, through the cooperation of St. Louis' Director of Public Safety Joseph P. Sestric and General F. P. Hardaway, Director of Civil Defense for the St. Louis area. Chief Godfrey and Captain Elmer Brohammer are in charge of the special Civil Defense rescue school through which funds are allocated for the gas mask training program.

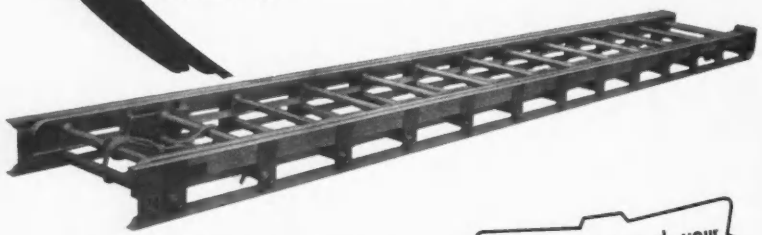
Each man chopped logs for 4 minutes while wearing the all-service or Chemox mask.

St. Louis fire fighters learn how to lift and carry victims from smoky atmosphere in this steel frame smoke room where small fires can be started to give realism to training.

since 1930—your mark of assurance

of safe, dependable, easy to handle, aluminum fire ladders

Because of the special construction shown above, your ALCO-LITE 2 EL Ladder will serve as safely and faithfully years from now as it does today. You have 1¼", heavy, corrugated aluminum rungs to assure solid, safe footing. The rungs can't twist, turn or break off because they are permanently locked to the side stringers with exclusive double gusset plate and expansion bushing construction. Channel slides the entire length of the ladder make it easier to operate and prevent the sections from disengaging under severe use. Spring loaded locks also make for easy and positive operation. Multiple section ladders are designed so that all sections extend simultaneously and lock and unlock automatically at any desired spot.



Available are single, double, triple and four section ALCO-LITE Ladders. Also, aluminum Pike Poles, Folding Ladders, Roof Ladders and the NEW Pumper Extension and Pumper Roof Ladders designed for short wheelbase pumper trucks.

for information and your copy of Fire Catalog 6F write to Dept. J1

oringinal manufacturer of aluminum ladders

ALUMINUM LADDER CO., Worthington, Pa.

What's New in Fire Equipment, Catalogs and Bulletins

Be sure to get the new, 16-page catalog on the complete line of hose reels for fire apparatus now ready for you at *Clifford B. Hannay & Son, Inc.*, 274 Main St., Westerlo, N. Y. . . . For emergency standby service in modern buildings, *D. W. Onan & Sons, Inc.*, Minneapolis 14, Minn., announces two new Ford-powered electric plants of 25,000 and 35,000-watt capacities. Write manufacturer for data to keep your community informed. . . . A new data sheet on its line of municipal fire hose is available from *B. F. Goodrich Company*, Industrial Products Div., Akron, Ohio. . . . Donald A. Knapp succeeds George D. Munger, retired, as manager of the New York office of *Rockwood Sprinkler Company*.

A new line of 50, 75 and 100 lb. capacity carbon dioxide wheeled fire extinguishers is now in production at the *Fyr-Fyter Company*, Dayton 1, Ohio. . . . *Link Radio Corporation*, a pioneer in 2-way mobile radio communication equipment for over 20 years, has acquired a new, modern plant at 110 Jericho Turnpike, New Hyde Park, N. Y. . . . Does industry in your community have the facts on forged Berylco nonsparking wrenches and other safety tools for use in hazardous locations? Suggest they write to *Beryllium Corporation*, Reading, Pa. . . . A portable electronic megaphone, weighing five pounds and said to multiply the human voice over 1,000 times, has been put out by *Audio Equipment Company, Inc.*, 805 Middle Neck Road, Great Neck, N. Y.

A new improved 1½-in. industrial fog nozzle "No. 250" is the latest industrial fire protection item in the high quality line by *Powhatan Brass & Iron Works*, Ranson, West Virginia. . . . "SPA-FLA," a portable safety welding shield made up of U.L. "listed" flame-retardant heavy canvas with an all welded wire fabric insert is announced by *Frommelt Industries*, Dubuque, Iowa. . . . A device to eliminate short circuit fire hazards on apparatus and other vehicles is the "Mak-Saf Circuit Switch," (see November, 1951, FIREMEN), now distributed by *Monroe Standard, Inc.*, Galion, Ohio. . . . Check your ladder needs with "Fire Catalog 6F," free for the asking from *Aluminum Ladder Company*, Dept. J-1, Worthington, Pa. . . . Are you ready for water rescue and recovery? Ask *Aquatic Equipment Company*, Box 563, Des Moines, Iowa, for free folder on this subject.

Have you seen the miniature fire fighters' badges, exact replicas of those on your uniform, made by *V. H. Blackinton & Company, Inc.*, Attleboro Falls, Mass.? Ask your equipment dealer to show you samples. . . . Get the latest Catalog No. 350 from *Cairns & Bros., Inc.*, Allwood, Clifton, N. J. . . . To have high pressure air available always for charging breathing equipment tank supply, examine the merits of the Cornelius air compressor. Free illustrated catalog is yours from *The Cornelius Company*, 566 39th Ave., N.E., Minneapolis, Minn. . . . Look to *Federal Sign and Signal Corporation*, 8717 So. State St., Chicago 19, Ill., for a complete, modern warning system for air raid, disaster or fire alarm. . . . "The King," an all-steel bristle fire fighting broom with detachable handle for small space storage, is built for quick attack on grass and brush fires. Write to *Fire and Police Mfg. Corporation*, 24-20 Bridge Plaza South, Long Island City 1, N. Y. . . . For a free, complete list of publications of the National Fire Protection Association, just send your post card request to the *NFPA Publications Department*, 60 Batterymarch Street, Boston 10, Massachusetts.

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Safety Clothing for FIREMEN

The Original STRIPED SAFETY COAT

The striped safety coat for firemen is an *original* MIDWESTERN development . . . featuring highly visible yellow stripes which are *rubberized as part of the material* . . . not painted, glued or sewed on!

Service records prove that Midwestern Striped Safety Coats withstand years of rugged duty . . . offer high safety visibility during the entire life of the garment. There are many imitations but *no substitute* for the workmanship, built-in comfort and longer wear you receive by specifying MIDWESTERN.

MIDWESTERN LEADS IN QUALITY

Superior quality, advanced design, exclusive fabric materials and safety features have made Midwestern a leader in the field of firemen's safety clothing. For complete information on our full line, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

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Manufacturers of the Famous MACKINAW Safety Coats

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CONFIDENCE

(based on past experience and good judgement)

TO BUY, *in one order..*

W. G. Strickfaden, Fire Chief, Columbus, Ohio examines a portion of the shipment recently received from Bi-lateral Fire Hose Company.

Bi-Lateral! First to recognize the need for and construct fire hose with the Bi-Lateral feature.

First to change pin lug to rocker lug couplings.

First to offer FREE fire hose record cards to fire depts. They are still available.

6½ miles of FIRE HOSE!

Yes! A man must be *sure* of the value to his city before he places an order for 35,000 feet of fire hose. And with *Bi-lateral*, you know you can *always* be sure! Bi-lateral is the hose that is manufactured *without* a *single compromise*. As hose manufacturers we know we are dealing with *lives*, not dollars — and Bi-lateral Hose is built on the premise that "Safety is Worthless Unless it is *Absolute*."

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smaller cities, volunteer and industrial fire departments

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the Seagrave COMMERCIAL AERIAL LADDER

Now you can afford The Seagrave Aerial Ladder you have always wanted and needed . . . Here is the new all-steel Seagrave Aerial Ladder at an economy price . . . This ladder is ALL SEAGRAVE and has all the operational features of the Seagrave standard aerial . . . New one-hundred percent hydraulic hoisting mechanism and ladder. Seagrave body and controls. A considerable saving made possible by building the 65 foot ladder on a commercial truck chassis. No other aerial can equal its quality construction for the price . . . Mail the coupon today for complete information about the new Seagrave Commercial Aerial Ladder.

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WARNING

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strike without warning!

The Atom Bomb is not the only, nor the greatest danger to American Communities. This year natural disasters have hit all parts of our country. Many of these areas felt immune to danger, but with nature there is no immunity — no four hour alert — she strikes now! Fast and furious!

Even a few seconds warning can save countless lives. Modern sirens can alert an entire countryside to danger or rally Civilian Defense or other rescue teams to aid victims.

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formerly: Federal Enterprises, Inc.

8717 S. State St., Chicago 19, Ill.

THE twenty-six fire chiefs and fire departments listed below enrolled in NFPA during May. Usually at this time of year there is a diminishing of such new memberships, followed by an upswing in the Fall. It is encouraging to note that the circulation of FIREMEN continues to grow among fire departments throughout the world.

At present the magazine is being distributed to 2,144 fire departments and 25,588 fire fighters who subscribe to NFPA Fire Department Membership. In addition 2,391 fire chiefs, fire officers, fire marshals and other members of the fire service subscribe to FIREMEN through their individual Associate Memberships in NFPA.

California: Anderson Air Force Base Fire Station No. 1, San Francisco.

Idaho: Jerome Company Rural Fire Department, Jerome.

Illinois: Chief Haskell Bohn, Clinton Fire Department, Clinton; Glencoe Fire Department, Glencoe.

Kentucky: Buechel Volunteer Fire Department, Louisville; St. Matthews Volunteer Fire Association, Louisville.

Louisiana: Greensburg Volunteer Fire Department, Greensburg.

Maryland: Citizens Truck Company, Frederick.

Massachusetts: Chief Clifton L. Baker, Jr., Holbrook Fire Department, Holbrook.

Michigan: Chief Harold Walker, Eagle Hose Company, Hartford.

New Jersey: Chief Richard H. Stewart, Rochelle Park Fire Department, Rochelle Park; Waldwick Fire Department, Bureau of Fire Prevention, Waldwick.

New York: Sea Cliff Fire Department, Sea Cliff, Long Island; Lyncourt Volunteer Fire Department, Inc., Syracuse; Brookside Company No. 2, Uniondale Fire Department, Uniondale, Long Island.

North Carolina: Chief Clyde Wilkerson, Guil-Rand Fire Department, Archdale; Chief E. G. Moser, Hickory Fire Department, Hickory.

Ohio: Lyndhurst Auxiliary Firemen's Association, Cleveland.

Ontario: Chief Leon W. Millie, Fire Department, Guelph; Winger-Wainfleet Volunteer Firemen's Association, Wainfleet.

Saskatchewan: Village of Climax Fire Department, Climax; Estevan Fire Department, Estevan; Southey Fire Brigade, Southey.

Virginia: Tazewell Fire Department, Tazewell.

West Virginia: Clendenin Volunteer Fire Department, Clendenin.

England: Worcester City & County Fire Brigade, Worcester.

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This is a piece of equipment, not just another broom.

Send check or money order in the amount of $3.50 for sample, and convince yourself. You will never buy any other broom. It has many uses. Money refunded within ten days if not satisfied with sample.

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Save wear and tear on expensive, heavy equipment! Put "THE KING" fire fighting broom on all cars and fire trucks! It's inexpensive, easy to carry and built for quick attack on grass and brush fires.

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$34.00 ***per dozen***

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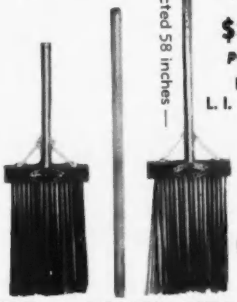

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FIRE & POLICE MFG. Corp.

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CHAMPION FIRE PUMPS

Manufactured by W. S. DARLEY & CO.

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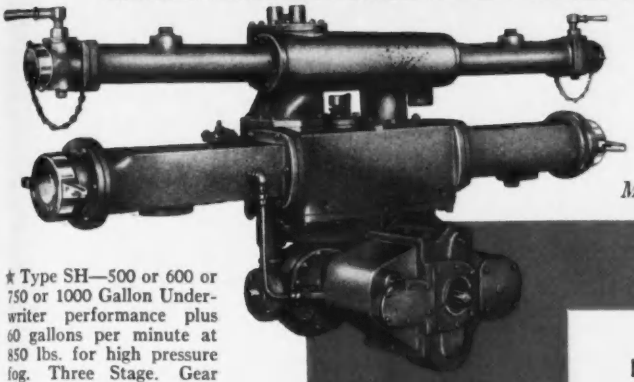
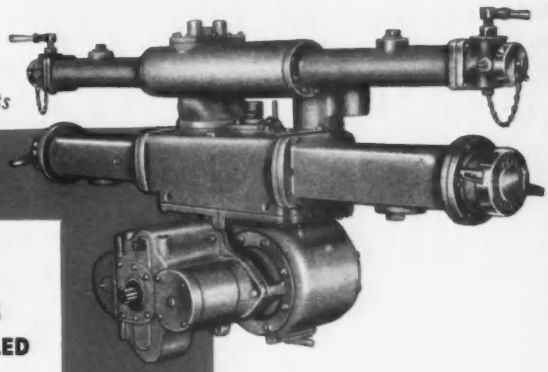


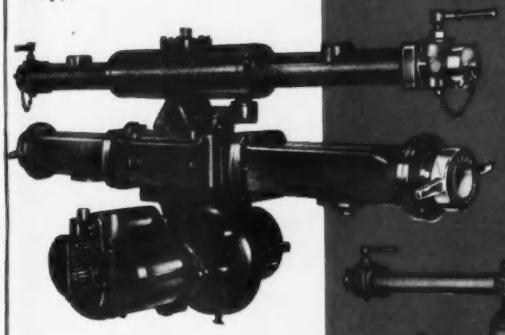
★ Type SH—500 or 600 or 750 or 1000 Gallon Underwriter performance plus 60 gallons per minute at 850 lbs. for high pressure fog. Three Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves (3 on 750 Pump).



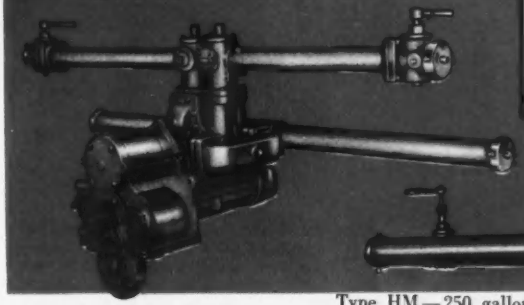
★ Type S—Capacities 500-600-750-1000 gallons per minute at 120 lbs. pressure. Two Stage. Gear Drive. Two suction inlets, 4", 4½" or 5". Two 2½" discharge valves. (3 on 750 Pumps).

DARLEY CHAMPIONS ARE UNEXCELLED FOR PERFORMANCE STAMINA ENGINEERING

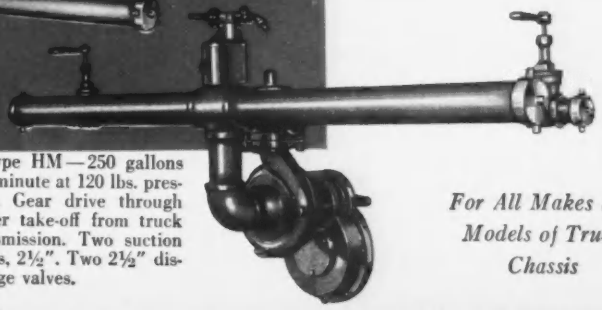
★ *Approved by National Board of Fire Underwriters and All State Insurance Bureaus*



★ Type M — Capacities 400-500 gallons at 120 lbs. Gear Drive. Two suction inlets, 3½" or 4". Two 2½" discharge valves.



★ Type JMS—300 gallons per minute at 150 lbs. or 100 gallons per minute at 600 lbs. for high pressure fog. Two Stage. Gear Drive. Two suction inlets, 3". Two 2½" discharge valves.



Type HM—250 gallons per minute at 120 lbs. pressure. Gear drive through power take-off from truck transmission. Two suction inlets, 2½". Two 2½" discharge valves.

For All Makes and Models of Truck Chassis

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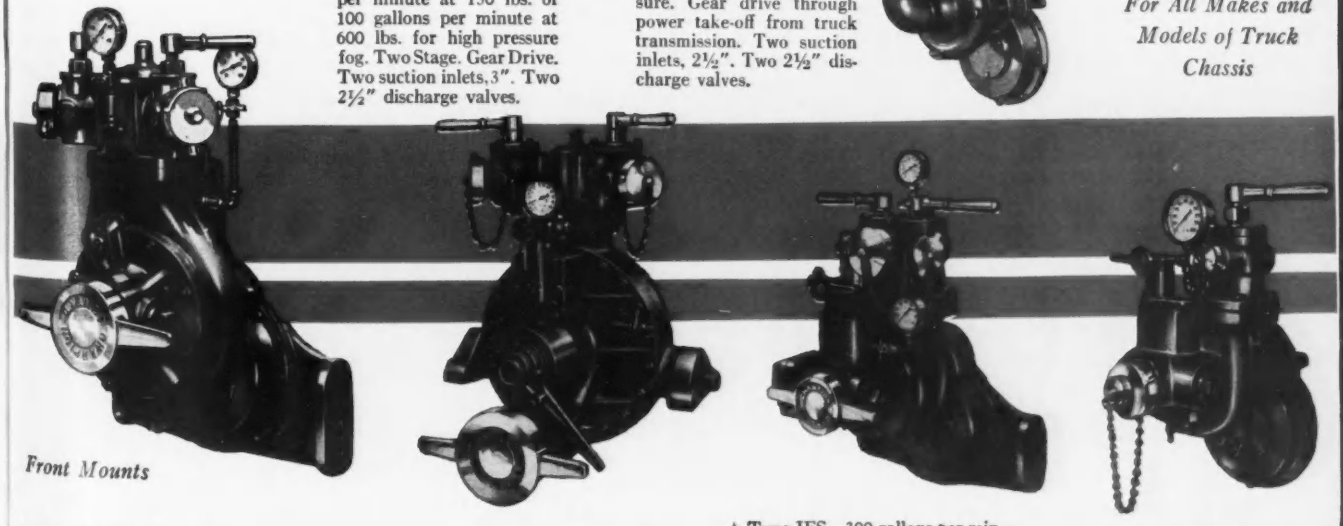

★ Type KFF—Capacities 400-500-600 gallons at 120 lbs. Gear Drive. 3½", 4", 4½" suction. Two 2½" discharge valves.

★ Type F — Capacities 400-500 gallons at 120 lbs. Direct Drive. 3½, 4" suction. Two 2½" discharge valves.

★ Type JFS—300 gallons per minute at 150 lbs. Pressures up to 1000 lbs. Two Stage. Gear Drive. 3" suction. One 2½" and two 1½" discharge valves.

Type H—100 gallons per minute at 500 lbs. pressure. Gear Drive. 2½" suction inlet. 1½" discharge valve.

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Outlasts the Fire

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1,000 G.P.M.
SIZES

A HOG FOR FOG
[or straight stream]

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1245 2½" 500 G.P.M.	100	536 40 ft.	517 60 ft.	415 145 ft.
1247 2½" 1,000 G.P.M.	100	1083 55 ft.	1069 75 ft.	957 150 ft.

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500 G.P.M. and 1,000 G.P.M. sizes

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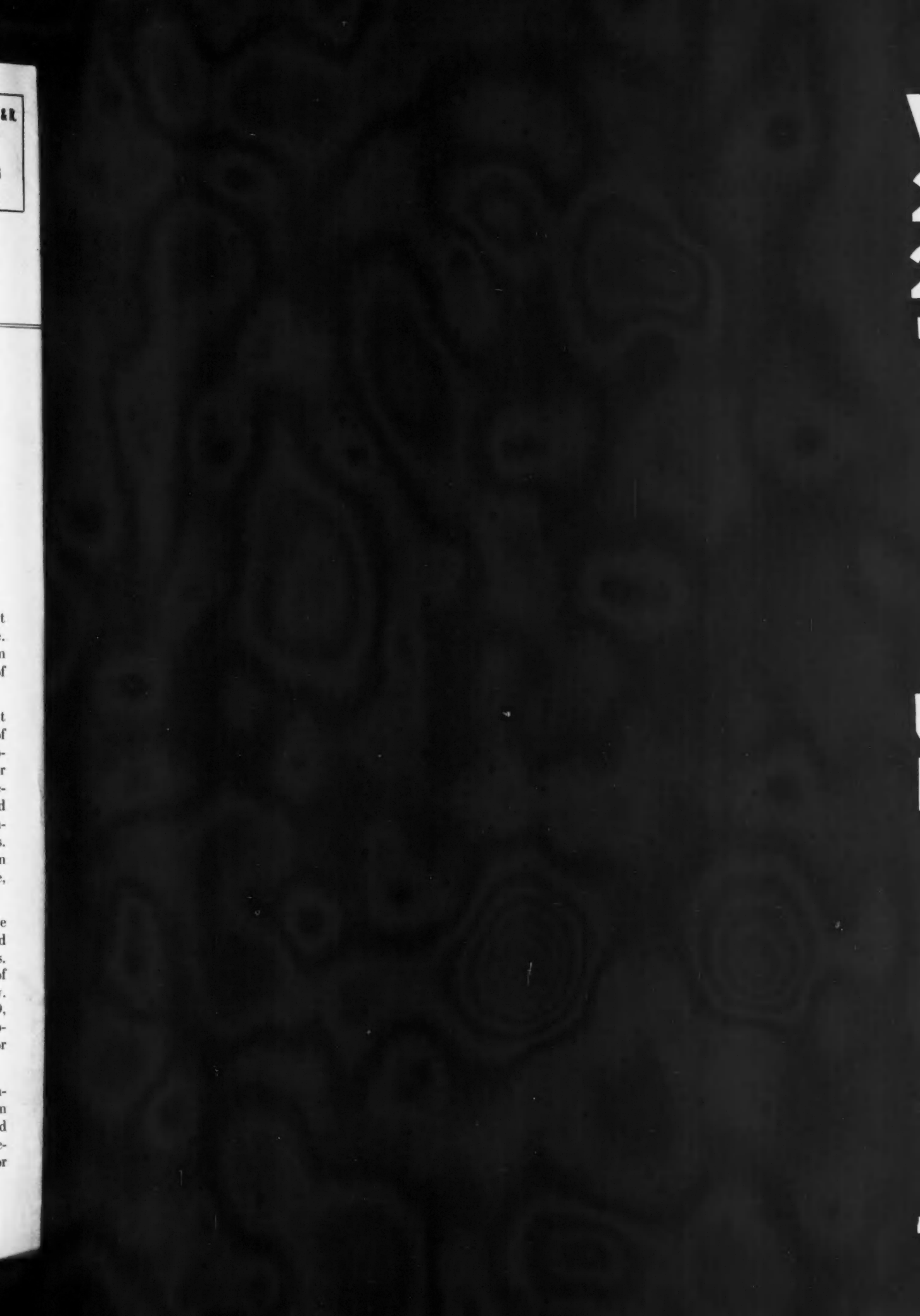
Make a habit of referring to

NFPA Standards

As a fire officer or fire fighter you need to have a great deal of technical information handy for quick reference. You must be familiar with the up-to-date fire protection standards, recommended by the foremost authorities of the fire service and of industry.

One easy way to keep posted is to make sure that your fire station library has all of the latest editions of the standards of the National Fire Protection Association. These are available as separate pamphlets, or in the six volumes of the National Fire Codes. Fire departments which have membership in NFPA should write to the NFPA Publications Department for information on the special subscription plan for the Codes. The 1955 volumes are scheduled to be published in September. (See NFPA *Fire News* for May-June, 1955.)

At left are listed some of the standards which were acted upon at the recent NFPA Annual Meeting, and which are now available as "pocket-size" pamphlets. Each of these contains the latest recommendations of the NFPA for that particular subject of fire safety. Fire fighters may be particularly interested in No. 19, 193, 194, 403, 406 and 512. Single copies may be obtained for the prices listed. Discounts are available for quantity purchases.

Examine the list at left and check the new publications you want for personal use or for your fire station library. Clip the entire list and application blank and mail to the NFPA Publications Department. Then begin the useful habit of referring to NFPA standards for the answers to your fire portection problems.